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DEMOGRAPHICS, RECRUITMENT, AND RETENTION OF MICHIGAN HUNTERS: 2005 UPDATE

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ABSTRACT

At least 790,000 people purchased Michigan hunting licenses each year during 2003-2005. Hunter numbers have decreased since the 1960s when an average of 858,000 people purchased licenses. Not only has the number of licensees decreased since the 1960s, the percentage of Michigan residents (included all ages) that have purchased a hunting license has declined from an average of 10.2% during the 1960s to about 8% during 2003-2005. Currently, most hunters reside in the southern Lower Peninsula; however, a higher proportion of residents in the Upper Peninsula purchased hunting licenses. During 2003-2005, about 92% of the license buyers were males, but participation by females has increased since the 1980s. Hunting in Michigan has become increasingly focused on deer hunting; at least 90% of the hunting license buyers purchased a deer hunting license during 2003-2005. Deer hunting has generally increased in popularity during the last fifty years; however, this trend has started to reverse recently. Since the late 1990s, deer hunter numbers have been declining. About 78% of deer license buyers purchased a license during consecutive years, higher than for any other group of hunters. As deer hunting has gained popularity, small game hunting has declined. The proportion of males and females hunting small game in 2005 was among the lowest levels recorded since 1950. Deer hunters in 2005 were more specialized in their pursuit of deer than they were in 1968. In 2005, 62% of the deer hunters only purchased a deer hunting license, while 51% of deer hunters purchased only deer hunting licenses in 1968. In contrast, fewer small game hunters pursued only small game in 2005 than they did in 1968. In 1968, 45% of small game hunters only purchased a small game hunting license, while in 2005, 16% of these small game hunters only purchased a small game hunting license.

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INTRODUCTION

Hunting is an integral part of modern wildlife conservation programs in North America. Moreover, hunting can be important for promoting stewardship of all natural resources, not just game species (Holsman 2000). Between 1991 and 2001, the number of people hunting in the United States declined 7% from 14.1 million to 13.0 million people (U.S. Department of the Interior 2002a, Aiken 2004). In Michigan, the number of hunters declined 9% from 826,300 to 754,000 during this same period (U.S. Department of the Interior 1993, 2002b). In addition, the proportion of Michigan residents over 16 years of age that hunted in Michigan declined from 11% in 1991 to 10% in 2001. This trend could impact natural resource agencies' ability to provide recreational, management, and stewardship benefits of wildlife conservation programs (e.g., Brown et al. 2000a).

Although trends from national surveys indicate that hunting participation may have declined, it was unknown whether similar trends could be documented using independent data collected by the Michigan Department of Natural Resources (DNR). Moreover, national surveys were last completed for 2001. Thus, participation trends since 2001 were unknown. The major objectives of this study were to determine demographics (age, sex, and residency), recruitment, and retention of Michigan hunters and compare to previous estimates. Special focus was given to summarizing data from 2003-2005 because data collected prior to that time had been summarized previously (Frawley 2004).

METHODS

Hunters included anybody that purchased a license to hunt or trap bear, deer, elk, furbearers, small game, turkey, or waterfowl in Michigan (Table 1). Most people hunting in Michigan were required to purchase a hunting license. Only owners of farmland and their families that hunted on the property where they lived could hunt small game species without a hunting license. Additionally, any landowner (or their designee) could take raccoons and coyotes throughout the year on their property without a license if these animals were causing damage. Waterfowl hunters were generally required to purchase both a small game hunting license and waterfowl hunting license. Hunters younger than 16 years of age could hunt waterfowl without a waterfowl hunting license; however, they still were required to purchase a small game license.

Michigan currently sells hunting licenses using a statewide automated license sales system (i.e., Retail Sales System). This system allowed the DNR to maintain a central database containing license sales information (e.g., sales transactions and customer profiles). From this database, the sex, birth date, and state and county of residence of each license buyer were determined.

Residency of hunters was categorized by areas within the state that closely matched the DNR's wildlife management administrative units (Figure 1). The state was also divided into three ecological regions (Upper Peninsula [UP], northern Lower Peninsula

[NLP], and southern Lower Peninsula [SLP]). These regions closely matched major ecoregions (Albert 1995), except in the UP where two ecoregions were combined. Ecoregions are regions having similar soils, vegetation, climate, geology, and physiography. These ecoregions also matched regions used to report results from previous studies.

The DNR currently uses a restricted random drawing to allocate a limited number of bear and elk hunting licenses among applicants. An unlimited number of licenses were available for people hunting small game and hunting or trapping furbearers. An unlimited number of licenses were available for people hunting deer and waterfowl, although random drawings were also used to allocate certain types of deer licenses (e.g., antlerless licenses) and managed waterfowl area hunts among hunters. Turkey hunting licenses could be obtained either through random drawings for licenses valid for management units and hunt periods having a limited number of licenses or through direct sales of licenses for management areas and hunt periods without license quotas. In addition, turkey hunting licenses that were not allocated through the drawing could be purchased by non-applicants after the drawing was completed.

The procedures used to award turkey hunting licenses to people that were successful in the drawing differed between 1997 and subsequent years. These differences affect how hunting license sales can be compared among years. In 1997, hunters paid an application fee and a license fee when they applied for a hunt. Hunters that were unsuccessful in the drawing were reimbursed their license fee, while hunters that were successful in the drawing were mailed their hunting license. Starting in 1998, hunters only paid an application fee when they applied for a hunt. People that were successful in the drawing were mailed notification that they were successful in the drawing, and it was their responsibility to purchase a hunting license. Successful applicants did not always purchase a license.

Hunters had to be at least 14 years old before they could purchase a firearm deer hunting license in Michigan. Before 1970, however, there was no minimum age required to hunt deer with archery equipment or to hunt small game species in Michigan (Ryel et al. 1970). Beginning in 1970, hunters had to be at least 12 years old before they could purchase either an archery deer hunting license or small game hunting license.

Starting in 1995, Michigan hunting licenses could be purchased through the Retail Sales System using one of four types of identification: Michigan Driver License, Michigan Identification Card, DNR Sportcard, or DNR Identification Card. Most hunting licenses were purchased using a driver license; however, younger people ($\leq$16 years old) often used a DNR Sportcard because they did not have a driver license.

Hunter retention was the number of people remaining in the hunter population over time and was determined by monitoring a person's license purchases among years. Hunter retention was not estimated for hunters less than 18 years old because these young hunters often use multiple forms of identification to purchase licenses (e.g., DNR

Sportcard and driver license). Hunter retention was underestimated for people that use multiple forms of identification to purchase licenses because they can appear as different people buying a license rather than the same person.

Estimates of hunter demographics prior to 1995 were based on information collected from random samples of hunting license buyers. Thus, these estimates were subject to sampling errors (Cochran 1977). The Retail Sales System for selling hunting licenses has allowed the DNR to collect demographic information (sex, age, and residence) from nearly every license buyer. Thus, estimates derived for 1995-2005 were based on nearly complete counts (i.e., census) of hunting license buyers. Even with electronic licensing, a few license purchases were completed without collecting some demographic information. When summarizing data that included missing data, the distribution of hunter demographics among hunters with missing data was assumed to be the same as that for known hunters.

Many hunting participation studies estimate the number of people that actually hunted rather than people that purchased a license. Typically, 5-10% of the license buyers did not hunt. Thus, estimates from this study are not directly comparable to estimates based on actual participation. When calculating the percentage of Michigan residents that hunted, estimates of the population for Michigan were obtained from the U.S. Census Bureau and Michigan Department of Community Health.

Changing license types over time potentially confounds interpretation of participation trends. For example, a Sportsman license was sold during 1970-1996. This license allowed the purchaser to hunt small game, deer, as well as fish in Michigan. Before and after this license type existed, a hunter would have to purchase separate licenses to hunt small game and deer. Consequently, it was not always apparent what species were pursued by a purchaser of a Sportsman license (Hawn 1979).

Using historic and recent data, rates of participation for deer and small game hunting were summarized since the early 1940s by generation. Rates of participation were not examined for other species because historical data were not available. Participation rates for deer and small game hunting were summarized separately for five generations: people born 1904-1925, 1926-1943, 1944-1960, 1961-1982, and 1983 to present. Within each generation, participation was further summarized by age classes: 10-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, and 60-64.

The median age of deer and small game hunters was also calculated from historic and recent data and used to examine trends. The median age of a population was the age that divides the population into two groups of the same size, such that half the total population is younger than this age and the other half older. Changes in the median age of hunters were compared to the changes for Michigan residents to determine hunter recruitment rates. When the median age of hunters declined over time, hunter recruitment rates were generally increasing during this same period. In contrast, recruitment rates were considered on the decline during periods when the median age of hunters increased.

RESULTS

At least 790,000 people purchased hunting licenses to hunt in Michigan each year during 2003-2005 (Table 2). Participation declined by 79,310 people (9%) between 2003 and 2005.

Most hunters (≥96%) were residents of Michigan and most lived in the SLP during 2003-2005 (Tables 3-5). About 92% of the license buyers were males and 8% were females (Table 6). The proportion of female hunters was highest among people buying elk, deer, and bear hunting licenses. A relatively small proportion (≤3.3%) of the hunting licenses for furbearers, small game, and waterfowl were sold to females. The mean age of license buyers was about 41 years (Table 7). On average, people buying small game licenses were the youngest hunters, while people buying elk and fall turkey hunting licenses were the oldest.

Of the Michigan population 16 years old and older, about 18% of the males and 1.5% of the females purchased a hunting license in 2003-2005 (Table 8). Hunting participation among Michigan residents younger than 65 years of age during 2003-2005, ranged from a low of 6% for 12-year old residents to a high of about 12% for residents that were in their late thirties to early forties (Figure 2).

The most commonly hunted species in Michigan was deer. During 2003-2005, at least 90% of the hunting license buyers purchased a deer hunting license (Table 2). However, the number of deer hunting licensees decreased 10% during 2003-2005. For Michigan residents (<65 years of age), deer hunting participation ranged from a low of 3% among 12-year old residents to a high of about 11% for residents that were in their late thirties to early forties (Figure 3).

Small game licenses were the next most commonly purchased licenses (Table 2). About 37% of the license buyers obtained a small game license during 2003-2005. The number of small game hunting licensees decreased 12% during 2003-2005. Small game hunting participation for Michigan residents less than 65 years of age ranged from 2.5% among 18- to 20-year old residents to about 4.5% for residents that were in their early teens (13-14 years old) and among hunters in their late-thirties to early forties (Figure 4). Participation was generally greater than 3.5% among Michigan residents that were in their late twenties to their early fifties. Among female hunters, participation peaked when they were 12-14 years old.

About 14% of license buyers purchased a turkey hunting license during 2003-2005 (Table 2). The number of people hunting turkeys has been steadily increasing in recent years. The number of turkey hunting licensees increased 1% during 2003-2005. For Michigan residents less than 65 years of age, turkey hunting participation ranged from 0.5% among 18- to 22-year old residents to nearly 2% among Michigan residents that were in their late thirties to their mid-sixties (Figure 5).

About 8% of the licensees purchased a waterfowl hunting license during 2003-2005; however, the number of waterfowl hunting licensees declined 8% during this period (Table 2). Nearly 3% of the license buyers in 2003-2005 purchased a license for furbearers, and the number of licensees has been nearly unchanged during this period. Generally, 1% or less of the license buyers purchased either bear or elk hunting licenses during 2003-2005 because these licenses were limited.

Deer hunters were the most specialized group of hunters; about 62% of deer hunters did not buy any other type of hunting license during 2003-2005 (Table 9). The next largest group of specialist was small game hunters; about 16% of small game hunters only purchased a small game license. Most people that purchased a license to hunt species other than deer had purchased more than one hunting license type. Most of the people purchasing multiple hunting license types (≥78%) had also purchased a deer hunting license (Tables 10-12).

Nearly 78% of the hunting license buyers (≥18 years old) purchased hunting licenses during consecutive years (Figures 6 and 7; Table 13). The license types that were allocated using random drawings (i.e., elk, bear, and turkey) had the lowest percentage of repeat license buyers. Nobody purchased an elk license during consecutive years because elk hunters were ineligible to obtain licenses in consecutive years. Among license types that were not restricted (i.e., deer, fur harvester, small game, and waterfowl), hunter retention rates were highest among people buying a deer hunting license (≅78%), and about 66% among people buying other unrestricted hunting license types. Hunter retention rates were at least 20% higher among male than female license buyers (Table 13).

About 66% of license buyers (≥18 years old) purchased hunting licenses each year during 2003-2005 (Figure 8, Table 14). Most males that purchased deer, fur harvester, small game, or waterfowl hunting licenses in 2003 also purchased these licenses in both 2004 and 2005. Less than 50% of the males that purchased a bear, elk, or turkey hunting license in 2003 also purchased this same type of license each year during 2003-2005. (Hunter retention among bear, elk, and turkey hunters was artificially low because a limited number of licenses were available each year.) Most females (57%) buying licenses in 2003 did not consistently buy a hunting license each year during 2004 and 2005 (Table 14).

The number of people purchasing a hunting license has decreased 3% from an average of 858,000 in the 1960s to an average of about 829,000 during 2003-2005 (Figure 9). Not only has the number of licensees decreased since the 1960s, the percentage of Michigan residents (included all ages) that have purchased a hunting license has declined from an average of 10.2% during the 1960s to about 8% during 2003-2005.

Among generations of hunters born since 1900, the highest overall level of participation for small game hunting occurred among people born in 1904-1925 (Figure 10). Participation has declined with each successive generation since the early 1900s. In addition, the age class in which participation peaked within each generation has

occurred at a younger age with each successive generation, except for the latest two generations (i.e., hunters born since 1961). For the latest two generations, participation rates changed little among age classes. Deer hunting participation increased among the earliest two generations born in the 1900s (Figure 10). In general, deer hunting participation peaked among hunters born during 1944-1960, but has started to decline among the latest two generations.

The long-term change in the median age of small game and deer hunters since the early 1940s generally reflected the underlying age of Michigan residents (Figure 11). The median age of both Michigan hunters and residents increased from the early 1940s until the early 1950s. From the early 1950s until the early 1970s, the median age declined. This decline can be attributed to the large number of people born between 1946 and 1964 (i.e., baby boom generation). Since the early 1970s, the median age of Michigan hunters and residents has increased steadily. The median age of Michigan residents and hunters reached its highest recorded level in 2005.

DISCUSSION

The U.S. Department of the Interior (2002b) reported 10% of Michigan residents at least 16 years of age had hunted in 2001. They also reported 18% of the males had hunted. These estimates were similar to the level of participation observed based on license sales data in 2001 (Frawley 2004). The U.S. Department of the Interior is in the process of estimating hunting participation for 2006. These estimates should be available in 2007. They will probably report declining hunting participation in Michigan since 2001, based on recent declines in license sales in Michigan (Figure 9).

Deer and small game have traditionally been the most popular animals pursued by hunters in Michigan. However, trends in participation for deer and small game hunting have varied greatly during the last half century.

The number of people hunting during the regular firearm deer hunting season (November 15-30) increased 58% between 1960 and 1975 (3.1% increase per year, Figure 12), then increased another 10% between 1975 and 1998 (0.4% increase per year). The increased popularity of deer hunting has also been reported nationwide as the number of deer hunters reached record highs during the late 1990s and early 2000s (U.S. Department of the Interior 2002a, Aiken 2004). Deer hunter numbers in Michigan increased in response to increased deer numbers and expanded hunting opportunity. Nationwide, 79% of hunters pursued deer in 2001 (Aiken 2004). Deer hunting is more common in Michigan than reported nationwide; at least 91% of the Michigan licensees purchased a deer hunting license during recent years (Table 2). Since 1998, however, deer hunter numbers declined 22% in Michigan (3.5% decline per year).

The proportion of Michigan residents hunting small game has declined 65% between 1960 and 2004 (Figure 12). The average annual decline during this period has been 2.4% per year. Furthermore, the proportion of males and females hunting small game in 2005 was among the lowest levels recorded since 1950 for most age classes

(Figure 13). Declining numbers of small game hunters has also been noted nationally since the mid-1970s (Enck et al. 2000, U.S. Department of the Interior 2002a, Aiken 2004).

Rates of participation for small game and deer hunting have not only differed over time, but also by age class and by generation of hunters (Figure 10). Small game hunting initially appeared more popular than deer hunting among the earliest generations. With each successive generation, however, deer hunting supplanted small game hunting. Small game hunting participation rates eroded first among the oldest age classes of each successive generation. Participation rates for small game hunting have eroded to the point that currently rates of participation vary little among age classes. Rates of participation for deer hunting generally increased among generations until peaking among people born during 1944-1960. For the latest two generations, participation rates appear to be declining for all age classes except the youngest age class (i.e. 10-19 years old).

From 1942 to the mid-1980s, the median age of small game hunters was consistently lower than deer hunters. This difference likely occurred because hunters had to be at least 14 years old to hunt deer with a firearm but only 12 to hunt small game. Since the mid-1980s, the median age of small game and deer hunters has been similar, although the minimum age requirements have not changed. This pattern has emerged because recruitment and retention of small game hunters declined while recruitment and retention of deer hunters increased. During the last few years, the rate of increase for the median age of hunters has been greater than for Michigan residents (Figure 11). This difference reflects the declining rates of participation for both small game and deer hunting during recent years.

During 1960-2005, most of the deer and small game hunters resided in the SLP (Figure 14). The distribution of deer hunters among geographic regions has remained stable since the 1960s, but the distribution of small game hunters has shifted northward. Although most small game hunters still resided in the SLP in 2005, the proportion of hunters in the SLP has declined steadily since the 1960s (Figure 15). Hawn (1979) speculated that the declining ring-necked pheasant population was the primary reason for the declining small game hunter numbers in Michigan. Pheasants were most common in the SLP, which also was the region experiencing the greatest decline in small game hunters and the highest proportion of Michigan residents. Factors other than declining pheasant numbers were probably responsible for declining small game hunter numbers in Michigan because this decline has also occurred in areas where pheasants did not occur. Other factors may include increased urbanization of the human population, increased competition between hunting and other leisure activities, decreased access to private land for hunting, and loss of wildlife habitat (Brown et al. 2000b). The Harris Poll (2003) reported that most forms of recreation requiring physical activity such as hunting have declined in popularity since 1995.

During 1960-2005, about 2-4% of deer and small game hunters were nonresidents (e.g., Jamsen 1967, Langenau et al. 1985). The proportion of nonresident hunters has

been relatively constant since the 1960s (Figure 14). The U.S. Department of the Interior (2002b) reported that 6% of the state's hunters were nonresidents in 2001 (all types of hunting). This estimate may be flawed because information was collected from relatively few hunters which can lead to imprecise estimates.

The proportion of Michigan residents hunting deer and small game was highest among residents of the UP and lowest for residents of the SLP. Manfredo et al. (1984), Duda et al. (1995), Mankin et al. (1999), and U.S. Department of the Interior (2002a) noted that hunting participation was highest among people raised in rural areas. In 2005, 87% of Michigan residents lived in the SLP (U.S. Census Bureau, unpublished data). Thus, the higher rate of participation among Michigan residents in northern Michigan probably reflects their rural origins, although other factors such as greater access to public land in northern Michigan may also affect participation.

As deer hunting has become more popular, it has attracted a wider age class and more females. The proportion of residents that hunted deer increased initially for all age groups and sexes since the 1950s (Figure 16). Among males, hunting participation has remained constant among 10-19 year-olds since 1970 but has declined for most other age classes in recent years. Participation generally began to decline among males when they were 45-54 years old. Bouchard and Lerg (1977) also reported that in 1975 deer hunting participation started to decline when hunters were about 45 years old.

Deer hunters were generally devoted to their pastime. No other form of hunting had as high a percentage of people participating during consecutive years. During the 1960s, about 80% of the people that hunted deer with a firearm reported that they also hunted during the previous year (Ryel 1965a, 1966, 1968, 1969). This percentage increased to nearly 85% of the firearm deer hunters during the early 1980s (Ryel 1982). The increasing trend was consistent with the increased hunting by older hunters (≥55 years old) during this period (Figure 16).

Deer hunters in 2005 were more specialized in their pursuit of deer than they were in 1968. Ryel et al. (1970) reported that 51% of deer hunters purchased only deer hunting licenses in 1968. In 2005, 62% of the deer hunters only purchased a deer hunting license. Moreover, Watson et al. (1972) reported that 70% of deer hunters also purchased a small game hunting license in 1968. While in 2005, 32% of deer hunters also purchased a small game hunting license. In contrast to deer hunting, 45% of small game hunters only purchased a small game hunting license in 1968, while in 2005, 16% of small game hunters only purchased a small game hunting license.

As with male hunters, deer is the most frequently hunted species among female hunters (Henderson 2004). The proportion of female deer hunters in Michigan was about 6% during 1960-1980 (Figure 17). Since 1980, participation has generally increased, and during the last three years about 8% of deer hunters were females. Among small game hunters, females comprised about 2.5% of the hunters during 1960-1980. The proportion of small game hunters that were females has increased to nearly 4% during 1980-1996; however, much of this increase may be an artifact of changing license

types. From 1970 to 1996, a Sportsman's license was sold. This license allowed the purchaser to hunt, trap, and fish most species of game and fish (Hawn 1979). As this license type grew in popularity, fewer of the purchasers of licenses valid for taking small game actually pursued small game (Hawn 1979). Females that purchased a Sportsman's license probably were less likely to pursue small game than people that purchased a small game hunting license. Thus, when the Sportsman's license was eliminated in 1996, a disproportionate number of females chose not to purchase a small game license beginning in 1997. During the last three years, about 3.3% of the small game hunters were females.

Among females, deer hunting participation has generally increased among the youngest and oldest age classes since 1960 (Figure 16). Participation among people aged 20-54 has been declining since 1981. As noted for males, deer hunting participation among females began to decline when they reached 45-54 years of age. Participation among older females (≥55 years old) has remained near all-time highs, although it has declined in recent years.

Hunter retention rates were at least 20% higher among male than female license buyers. Female hunters also generally take fewer hunting trips, spend fewer days hunting, and spend less money hunting than male hunters (Responsive Management 2003b, Henderson 2004). In addition, female hunters generally have hunted for fewer years than male hunters.

The number of people hunting turkeys during the spring increased more than two fold between 1990 and 2005 (Figure 18). The average annual increase during this period was 8.2% per year. Participation during the fall season increased 64% between 1990 and 2005 (average annual increase = 3.4%). Turkey hunter numbers in Michigan have increased in response to increased turkey numbers and expanded hunting opportunity (Frawley 2003). Increasing numbers of turkey hunters has also been noted nationally since the early 1990s (Aiken 2004).

The number of people hunting waterfowl declined 18% during 1997-2004 (average annual decline = 2.8%, Figure 12). The number of trappers in 1960 was similar to the number in 2004, although during the interim years numbers have changed markedly (Figure 19). The number of people hunting bear has more than doubled during 1990-2005, and the average annual increase was 6.9% during this period (Figure 20).

MANAGEMENT IMPLICATIONS

Trends in hunter recruitment and retention reflect the supply and demand for hunting opportunities. These trends also may indicate changes in the number of people supportive of some conservation programs and number of people available to help achieve wildlife management goals. For example, declining hunter numbers may make it more difficult to reduce populations of nuisance or overabundant wildlife species.

Deer hunting has generally increased in popularity during the last fifty years; however, this trend has started to reverse recently. Since the late 1990s, deer hunter numbers have been declining. Concurrent with this decline, the median age of deer hunters has increased faster than the underlying population of Michigan. It also appeared that deer hunting participation among age classes has started to decline compared to participation rates of previous generations.

Most hunters are initiated into the sport of hunting before age 20 (Responsive Management 2003a). Since the 1980s, the percentage of youths hunting deer (10-19 years olds) has remained at about 6%. Thus, recruitment of youth deer hunters appears to be relatively steady; however, retention has generally declined among older age classes. The net effect has been fewer people purchasing deer hunting licenses since the late 1990s.

Small game hunting has generally declined in popularity during the last fifty years, and the long-term trend does not appear to be changing. Since the 1970s, small game hunter numbers have declined, and the median age of hunters has increased faster than among Michigan residents. Small game hunting participation has declined consistently among all age classes with each successive generation. Thus, both recruitment and retention has been declining among small game hunters.

As small game hunter numbers have declined, fewer small game species have been harvested. Thus, many small game species have population surpluses that could be harvested if additional hunters participated. The Wildlife Division needs to promote opportunities that increase small game hunting participation.

Two new laws will go into effect for the 2006 hunting seasons: one that lowers the hunting age and the other that creates an apprentice hunter program. The minimum hunting age will be lowered from 12 to 10 years old for hunting small game and from age 14 to 12 for hunting deer, bear, and elk with a firearm on private land only. Under the new law, youth hunters must be supervised in the field by a licensed adult hunter who must maintain unaided visual and verbal contact with the younger hunter at all times. The apprentice hunter program will allow individuals to hunt without the required hunter education course if accompanied and monitored by a licensed hunter 21 and older who is mentoring them in the sport. It is hoped that these new programs will increase hunting participation.

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LITERATURE CITED

Aiken, R. 2004. Fishing and hunting 1991-2001: avid, casual, and intermediate participation trends. Report 2001-5. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., USA.

Albert, D. A. 1995. Regional landscape ecosystems of Michigan, Minnesota, and Wisconsin: a working map and classification. General Technical Report NC-178. U.S. Department of Agriculture, Forest Service, North Central Forest Experimental Station, St. Paul, Minnesota, USA.

Bouchard, M. E., and J. M. Lerg. 1977. Sex and age parameters in the population dynamics of Michigan hunters. Wildlife Division Report 2796. Michigan Department of Natural Resources, Lansing, USA.

Brown, T. L., D. J. Decker, S. J. Riley, J. W. Enck, T. B. Lauber, P. D. Curtis, and G. F. Mattfeld. 2000a. The future of hunting as a mechanism to control white-tailed deer populations. Wildlife Society Bulletin 28:797-807.

Brown, T. L., D. J. Decker, W. F. Siemer, and J. W. Enck. 2000b. Trends in hunting participation and implications for management of game species. Pages 145-154 in W. C. Gartner and D. W. Lime, editors. Trends in outdoor recreation, leisure, CAB International, New York, New York, USA.

Cochran, W. G. 1977. Sampling techniques. John Wiley & Sons, New York, USA.

Duda, M. D., S. J. Bissell, and K. C. Young. 1995. Factors related to hunting and fishing participation in the United States. Responsive Management, Harrisonburg, Virginia, USA.

Enck, J. W., D. J. Decker, and T. L. Brown. 2000. Status of hunter recruitment and retention in the United States. Wildlife Society Bulletin 28:817-824.

Frawley, B. J. 2003. 2003 Michigan spring turkey hunter survey. Wildlife Division Report 3412. Michigan Department of Natural Resources, Lansing, USA.

Frawley, B. J. 2004. Demographics, recruitment, and retention of Michigan hunters. Wildlife Division Report 3426. Michigan Department of Natural Resources, Lansing, USA.

Harris Poll. 2003. Large decline since 1995 in favorite activities which require physical exercise. Harris Interactive 72. <http://www.harrisinteractive.com>. Accessed 5 Dec 2003.

Hawn, L. J. 1979. Hunting results, Michigan small game seasons, 1978. Surveys and Statistical Services Report 189. Michigan Department of Natural Resources, Lansing, USA.

Henderson, E. 2004. Participation and expenditure patterns of African-American, Hispanic, and female hunters and anglers. Report 2001-4. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., USA.

Holsman, R. H. 2000. Goodwill hunting? Exploring the role of hunters as ecosystem stewards. Wildlife Society Bulletin 28:808-816.

Jamsen, G. C. 1967. Sex and age structure of licensed hunters, trappers and fishermen in Michigan. Research and Development Report 125. Michigan Department of Conservation, Lansing, USA.

Langenau, E. E., E. J. Flegler, and H. R. Hill. 1985. Deer hunters' opinion survey, 1984. Wildlife Division Report 3012. Michigan Department of Natural Resources, Lansing, USA.

Manfredo, M. J., M. Lee, and P. J. Brown. 1984. Analysis of the 1980 national survey of fishing, hunting and wildlife-associated recreation: identifying and describing segments of consumptive users of fish and wildlife in the United States. Report Number 1, Volume III. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C., USA.

Mankin, P. C., R. E. Warner, and W. L. Anderson. 1999. Wildlife and the Illinois public: a benchmark study of attitudes and perceptions. Wildlife Society Bulletin 27:465-472.

Minnis, D. L., and R. B. Peyton. 1994. 1993 Michigan deer hunter survey: deer baiting. Federal Aid Job Performance Report W-127-R-12, Study 127-82, Job Number 2, Michigan Department of Natural Resources, Lansing, USA.

Responsive Management. 2003a. Factors related to hunting and fishing participation among the nation's youth; phase V: final report. Report prepared under a grant from the U.S. Fish and Wildlife Service, Division of Federal Aid, Sport Fish Restoration Program, Harrisonburg, Virginia, USA.

Responsive Management. 2003b. Women's participation in shooting sports. Report prepared under a grant from National Shooting Sports Foundation, Harrisonburg, Virginia, USA.

Ryel, L. A. 1965a. Hunter participation Survey D, 1964. Research and Development Report 46. Michigan Department of Conservation, Lansing, USA.

Ryel, L. A. 1965b. Small game hunter participation survey. Research and Development Report 47. Michigan Department of Conservation, Lansing, USA.

Ryel, L. A. 1966. Hunter participation Survey, D 1965. Research and Development Report 88. Michigan Department of Conservation, Lansing, USA.

Ryel, L. A. 1968. Hunter participation Survey D, 1967. Research and Development Report 149. Michigan Department of Conservation, Lansing, USA.

Ryel, L. A. 1969. Hunter participation Survey D, 1968. Research and Development Report 191. Michigan Department of Natural Resources, Lansing, USA.

Ryel, L. A., G. C. Jamsen, and L. J. Hawn. 1970. Some facts about Michigan hunters. Research and Development Report 197. Michigan Department of Natural Resources, Lansing, USA.

Ryel, L. A. 1982. Deer hunters' opinion survey, 1981. Wildlife Division Report 2933. Michigan Department of Natural Resources, Lansing, USA.

U.S. Department of the Interior. 1993. 1991 National survey of fishing, hunting, and wildlife-associated recreation: Michigan. U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, Bureau of the Census, Washington, D.C., USA.

U.S. Department of the Interior. 2002a. 2001 National survey of fishing, hunting, and wildlife-associated recreation. U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, Bureau of the Census, Washington, D.C., USA.

U.S. Department of the Interior. 2002b. 2001 National survey of fishing, hunting, and wildlife-associated recreation: Michigan. U.S. Department of the Interior, Fish and Wildlife Service, and U.S. Department of Commerce, Bureau of the Census, Washington, D.C., USA.

Watson, M. H., G. C. Jamsen, and L. W. Moncrief. 1972. The Michigan deer hunter. Research and Development Report 259. Michigan Department of Natural Resources, Lansing, USA.

Winterstein, S. R. 1992. Michigan hunter opinion surveys. Department of Fisheries and Wildlife, Michigan State University, Lansing, USA.

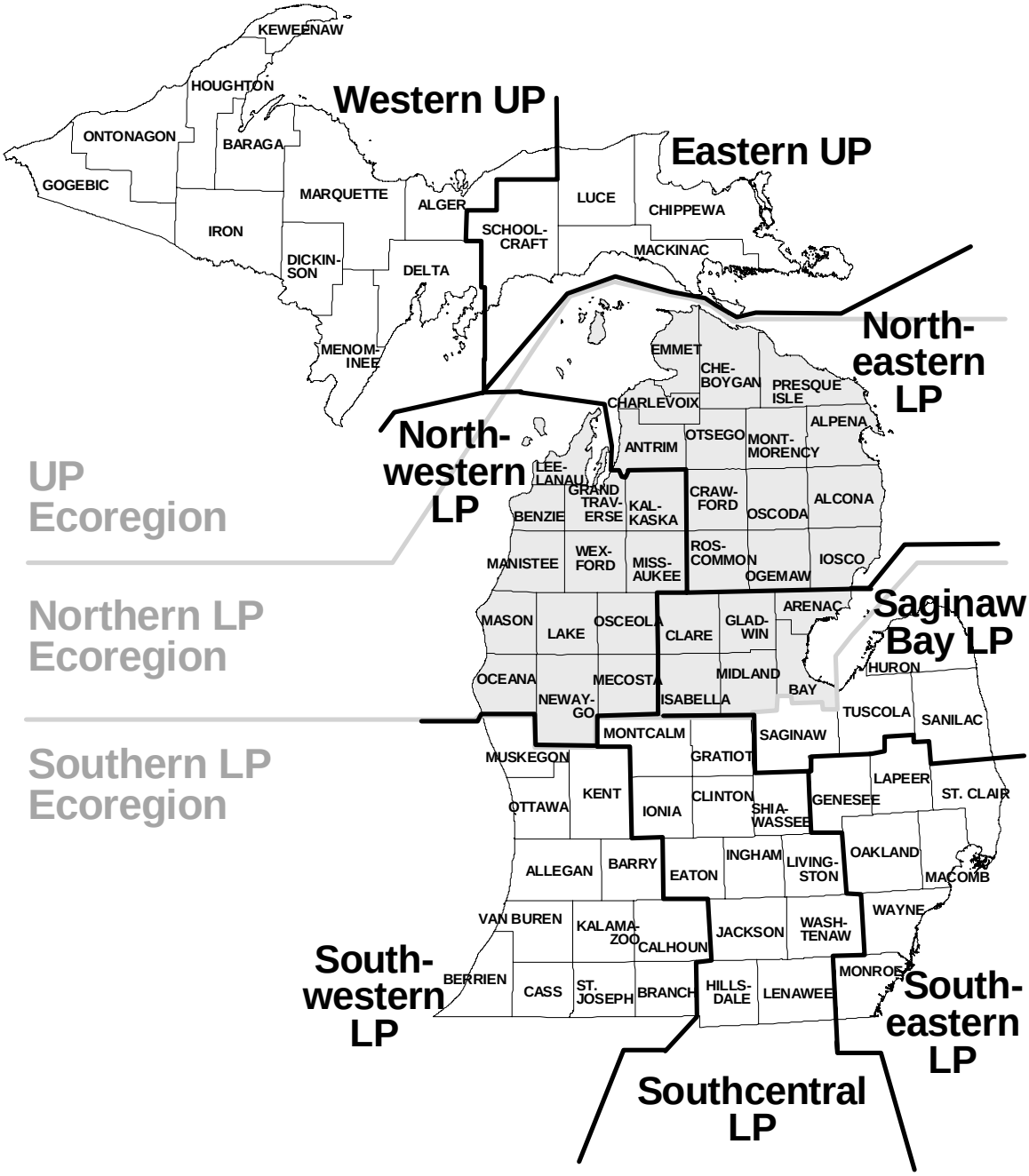

Figure 1. Areas used to summarize regional estimates of hunter demographics in Michigan.

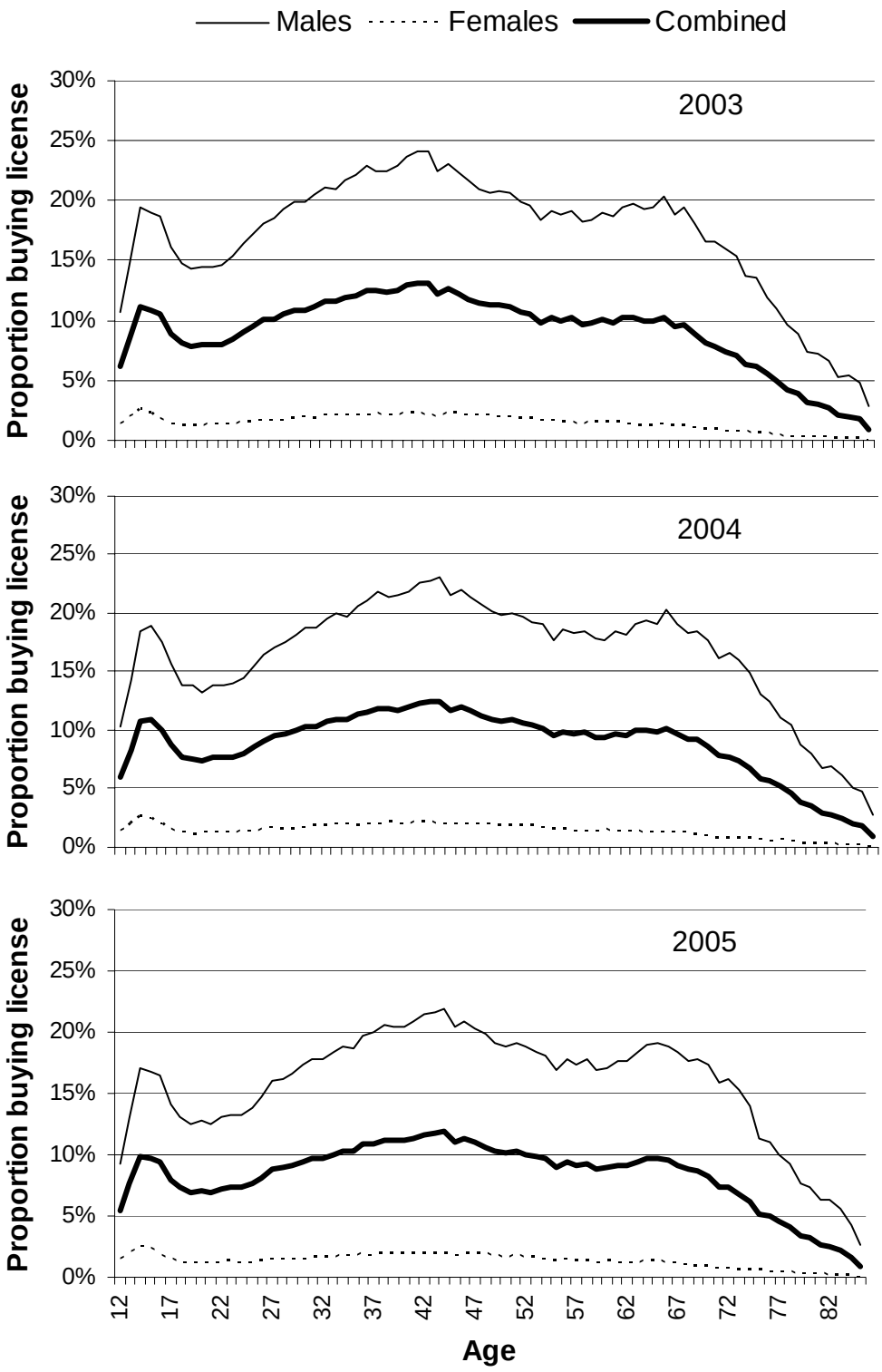

Figure 2. Proportion of Michigan residents that purchased Michigan hunting licenses (all hunting license types) by age, 2003-2005.

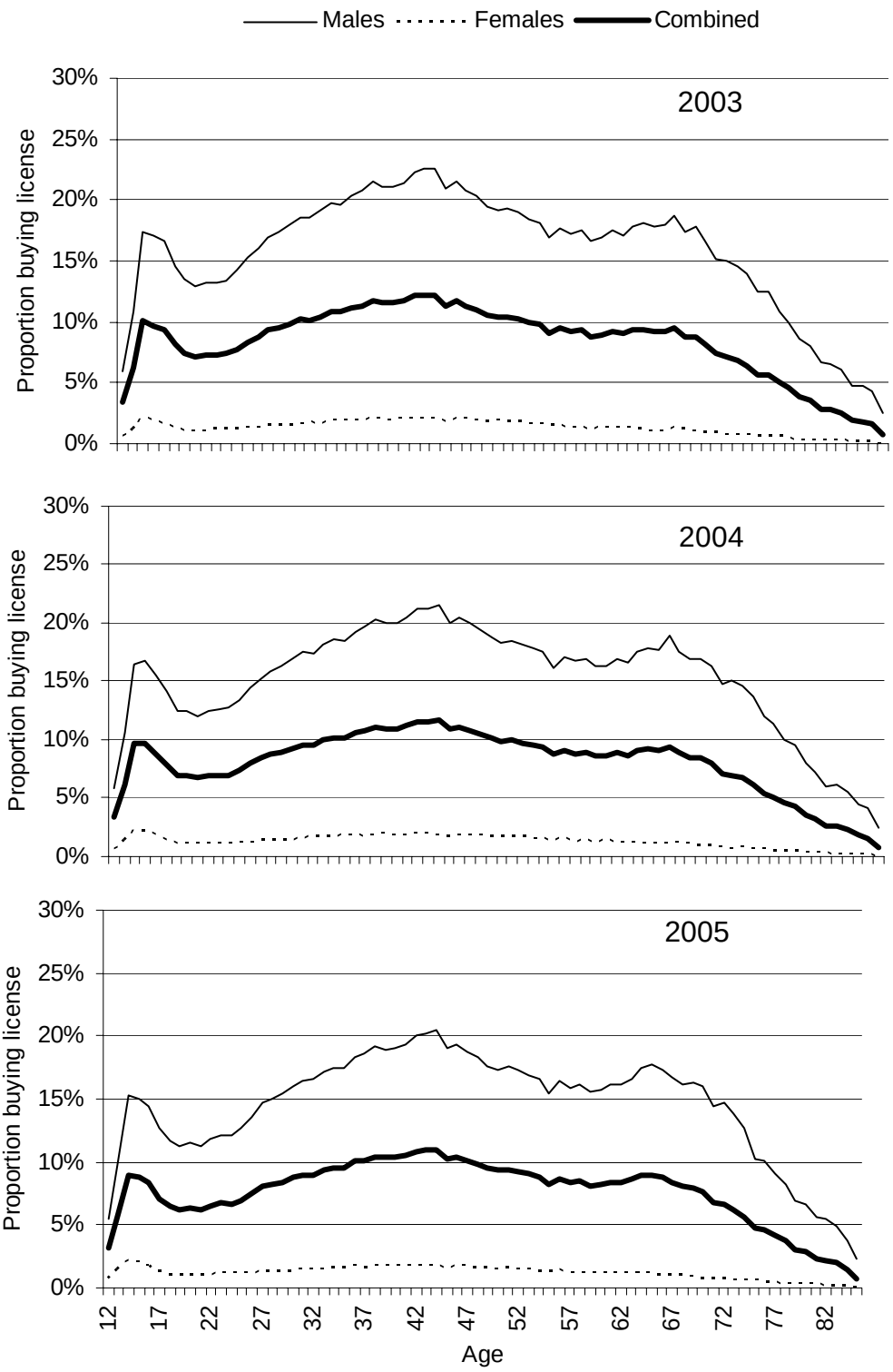

Figure 3. Proportion of Michigan residents that purchased Michigan deer hunting licenses by age, 2003-2005.

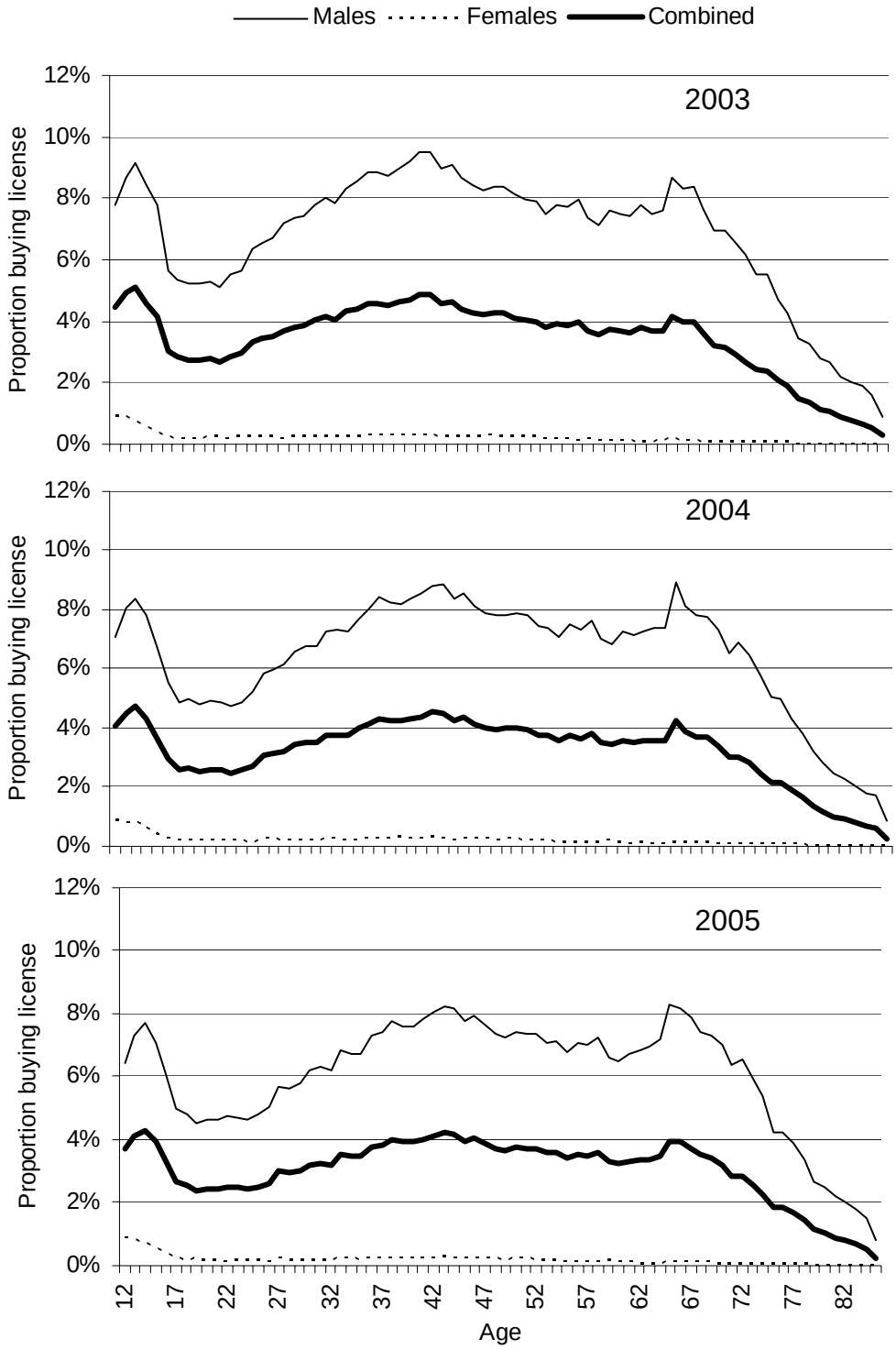

Figure 4. Proportion of Michigan residents that purchased Michigan small game hunting licenses by age, 2003-2005.

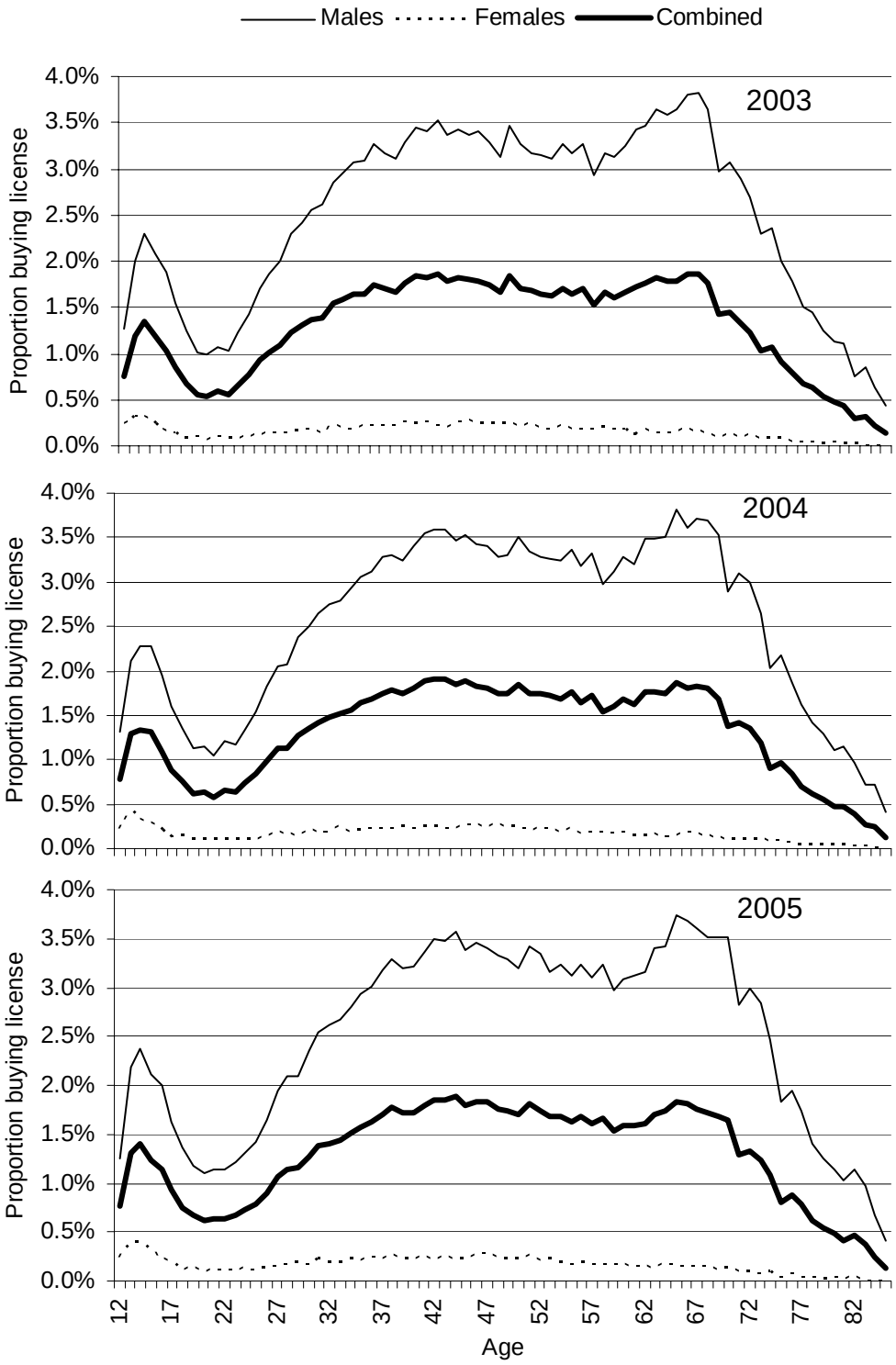

Figure 5. Proportion of Michigan residents that purchased Michigan turkey hunting licenses by age, 2003-2005.

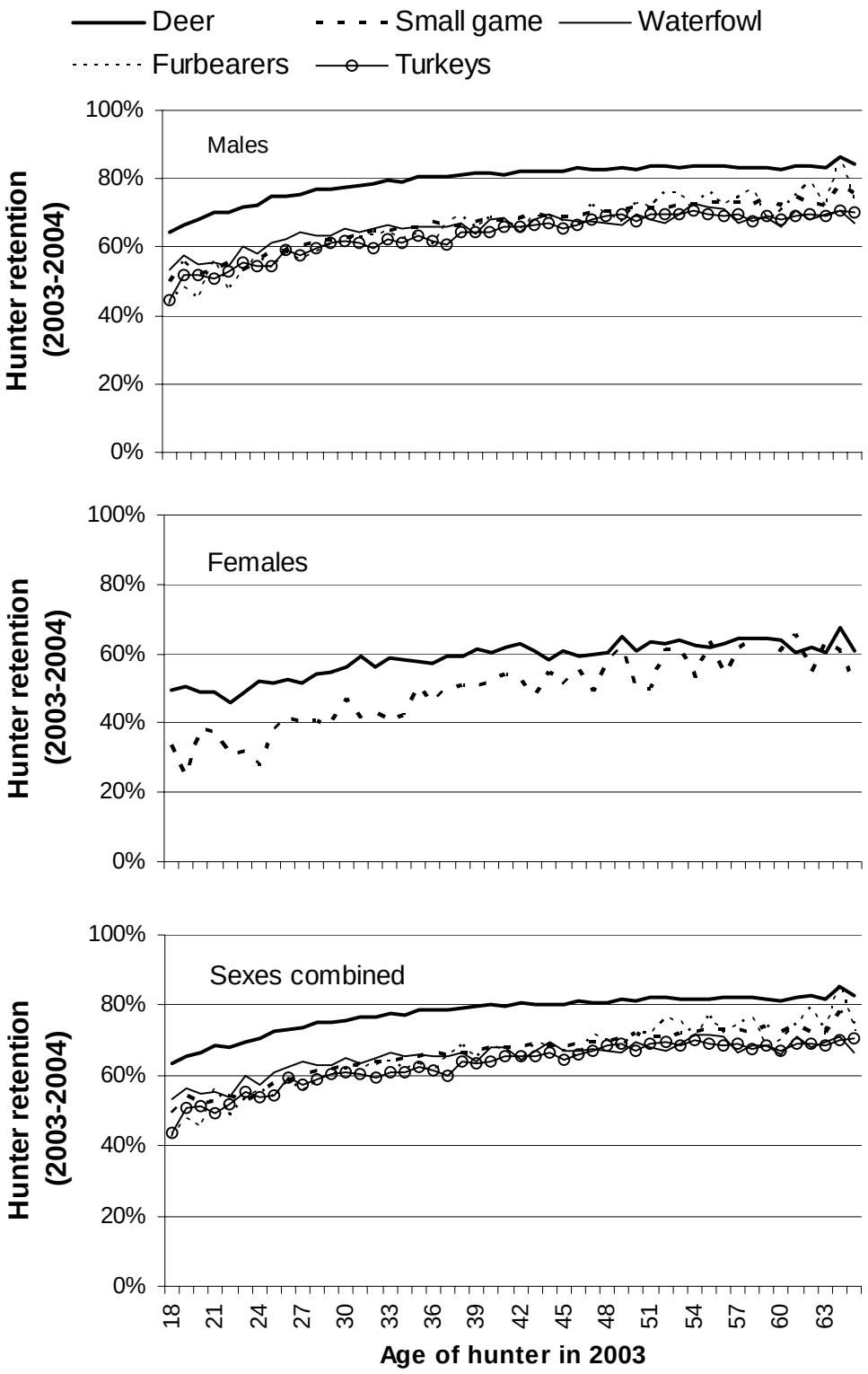

Figure 6. Proportion of hunters that purchased hunting licenses during both 2003 and 2004 in Michigan by age. Hunter retention was not plotted for females hunting waterfowl, furbearers, and turkeys because too few females purchased these license types to produce a smooth plot.

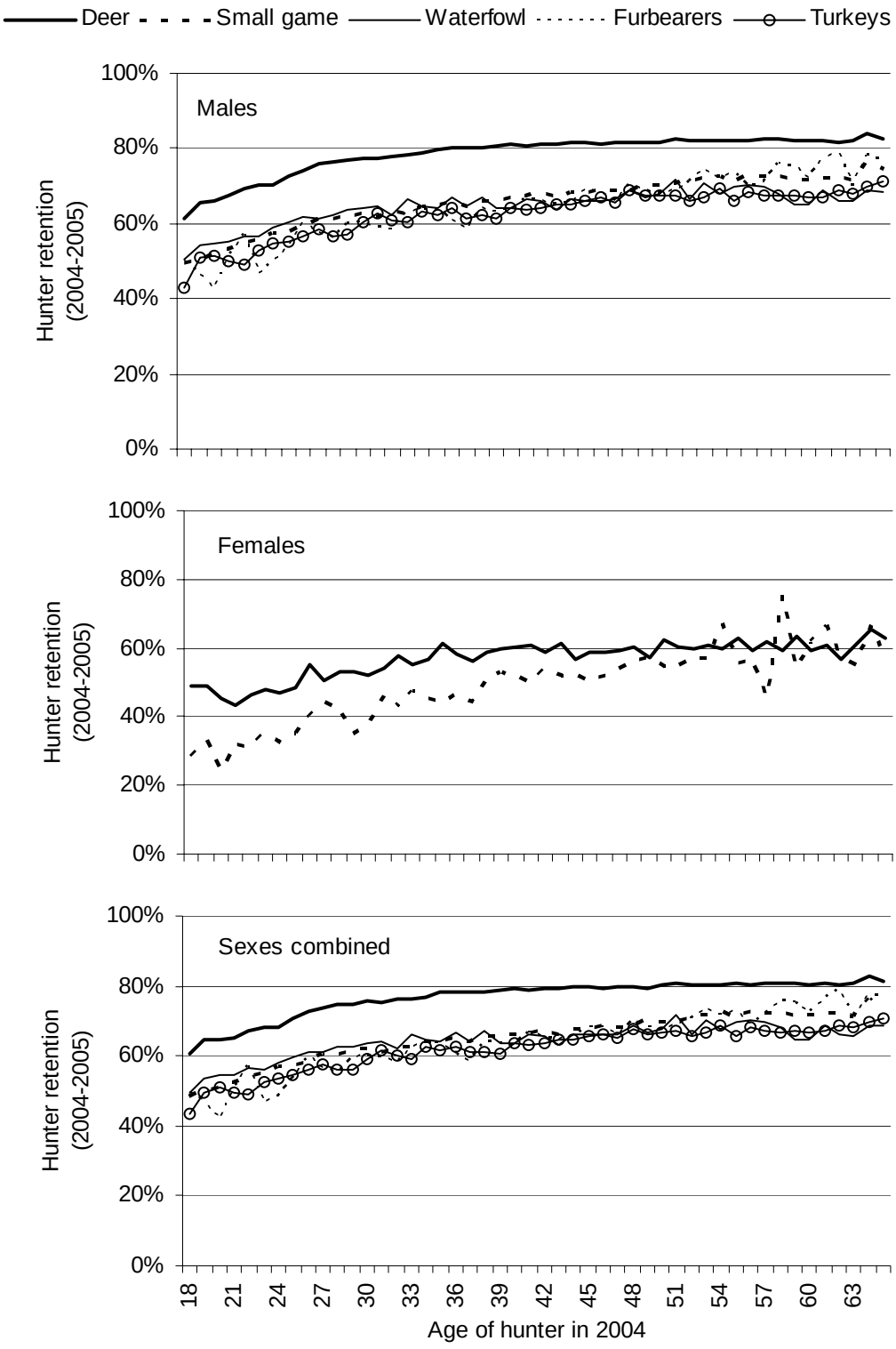

Figure 7. Proportion of hunters that purchased hunting licenses during both 2004 and 2005 in Michigan by age. Hunter retention was not plotted for females hunting waterfowl, furbearers, and turkeys because too few females purchased these license types to produce a smooth plot.

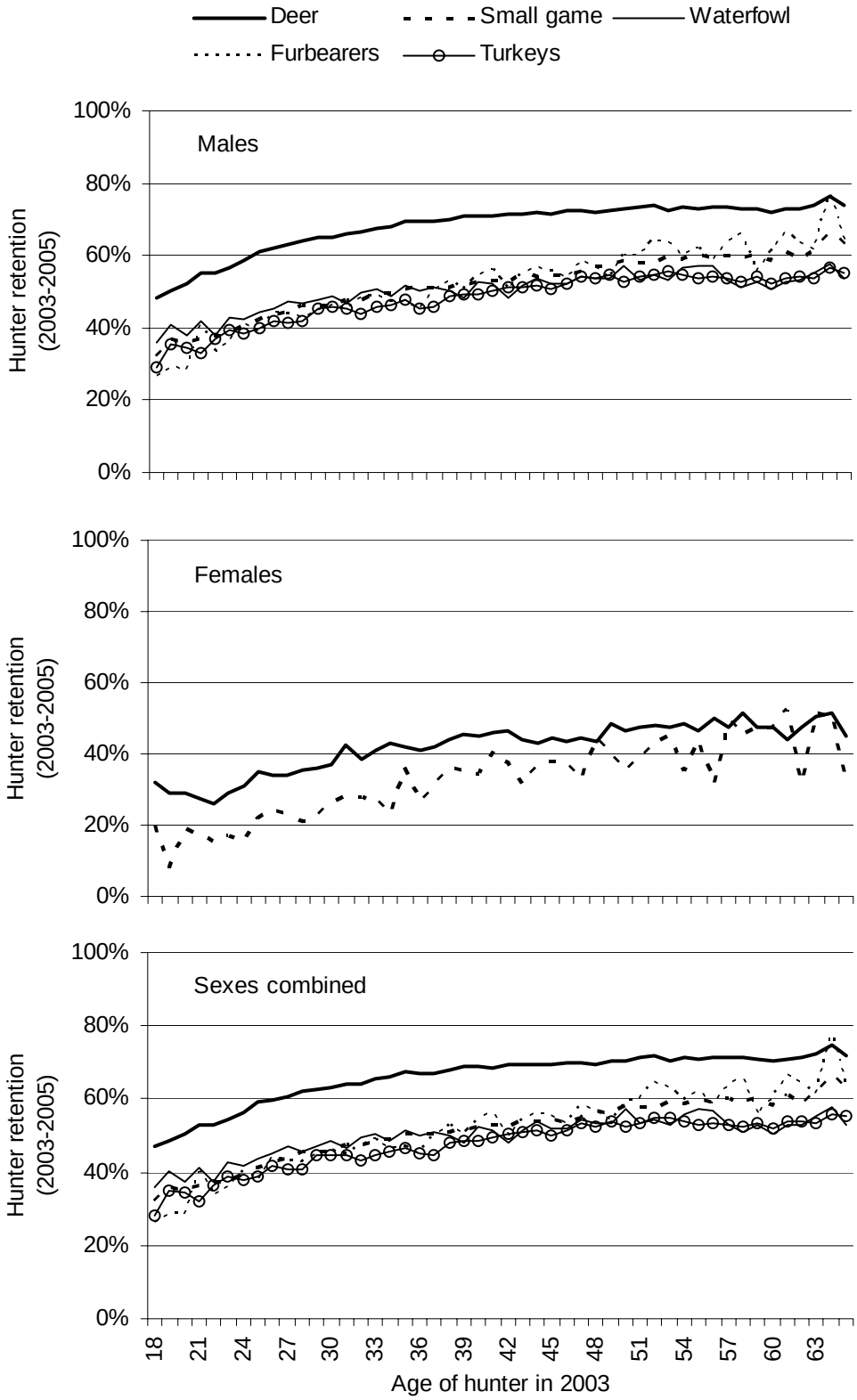

Figure 8. Proportion of hunters that purchased hunting licenses during three consecutive years (2003-2005) in Michigan by age. Hunter retention was not plotted for females hunting waterfowl, furbearers, and turkeys because too few females purchased these license types to produce a smooth plot.

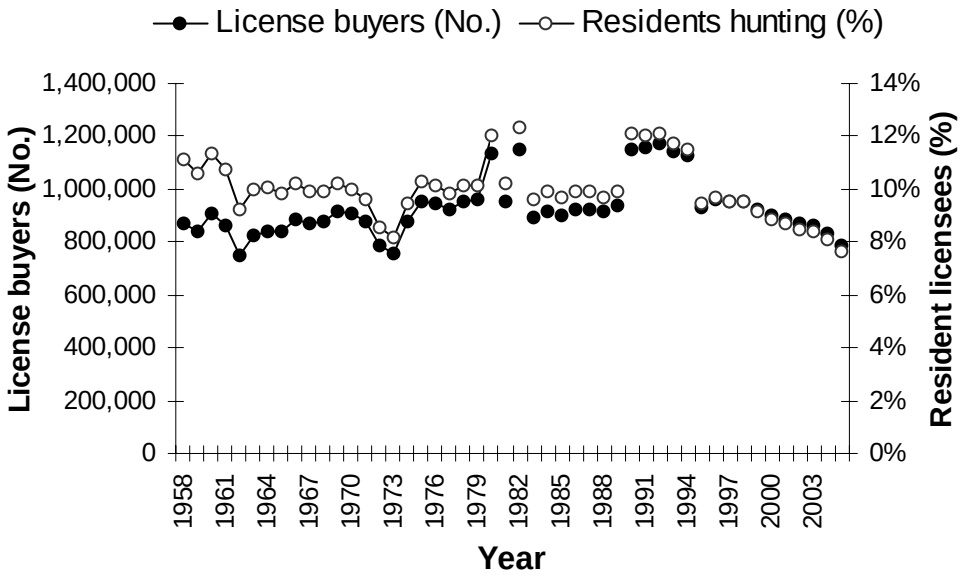

Figure 9. Number of people (both residents and nonresidents) that purchased a Michigan hunting license and proportion of Michigan residents that purchased a hunting license during 1958-2005. A person was counted only once regardless of the number of licenses purchased. It was assumed that 2% of the hunters purchasing a license were nonresidents when calculating participation by Michigan residents.

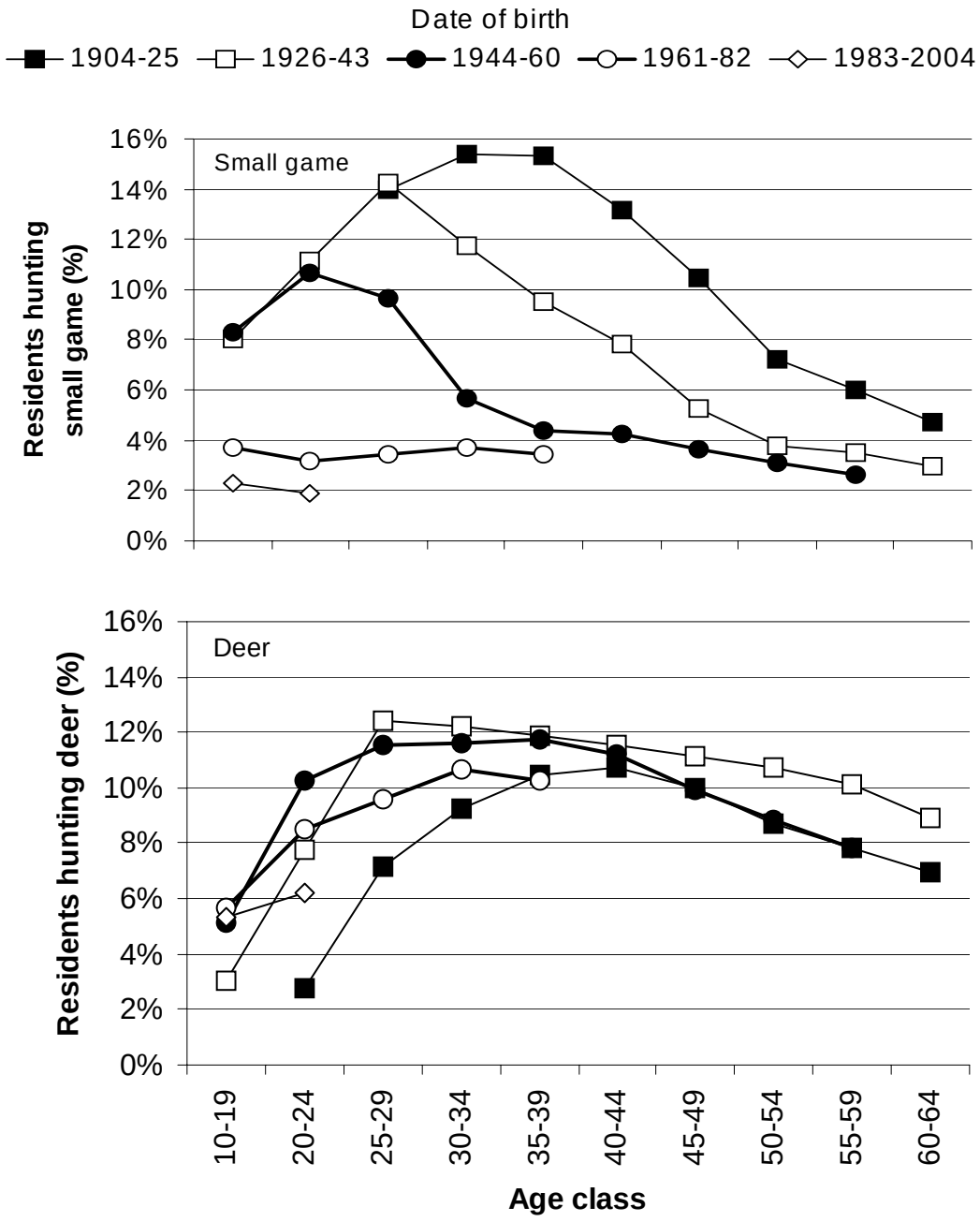

Figure 10. Rates of participation for small game and deer hunting summarized by age class and by generation. Plot summarized from data collected periodically from 1942 to 2005; data was available for the same years that had data in Figure 15.

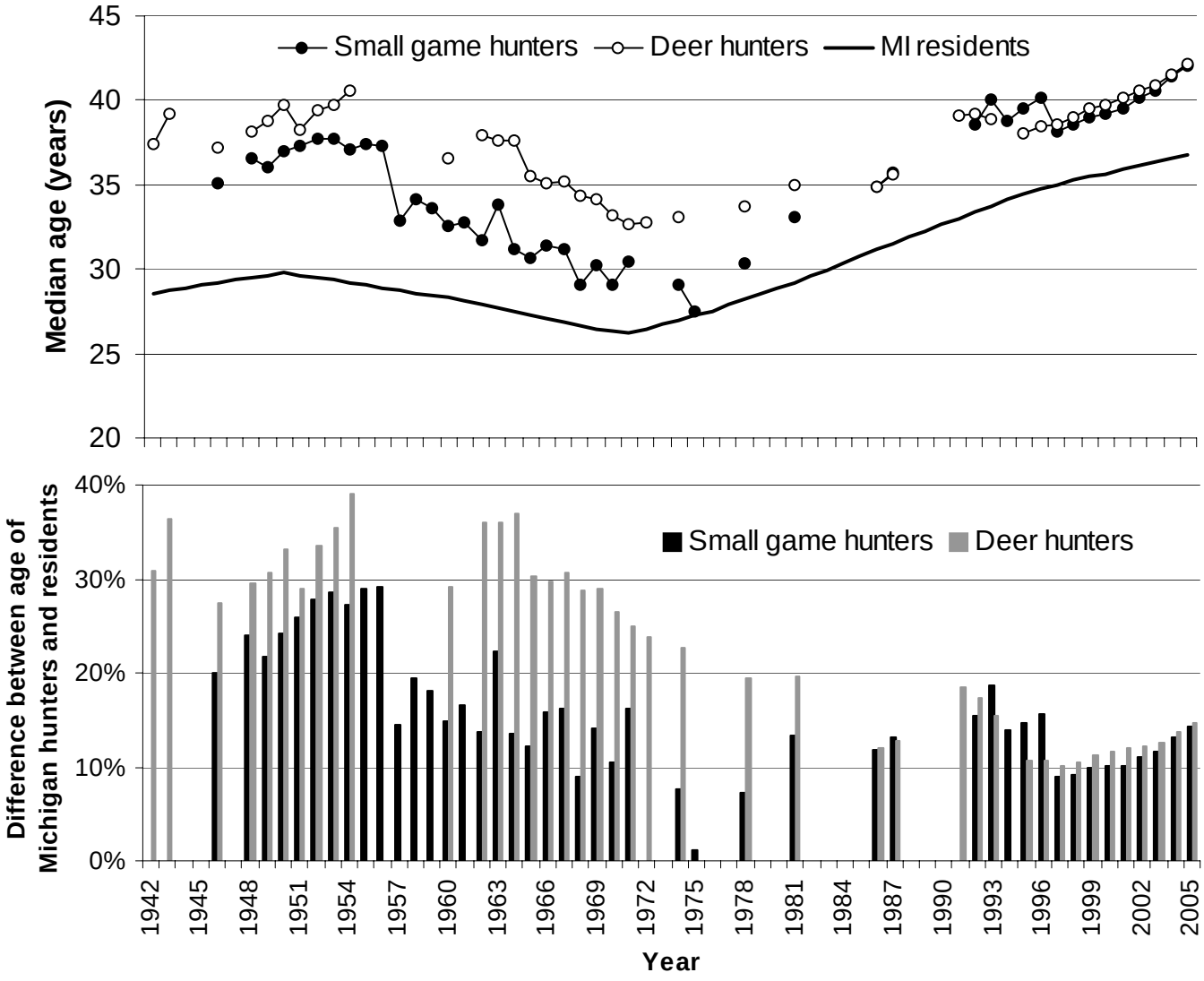

Figure 11. Median age of Michigan hunters and residents (top), and the percentage difference between the median age of Michigan hunters and residents (bottom) during 1942-2005.

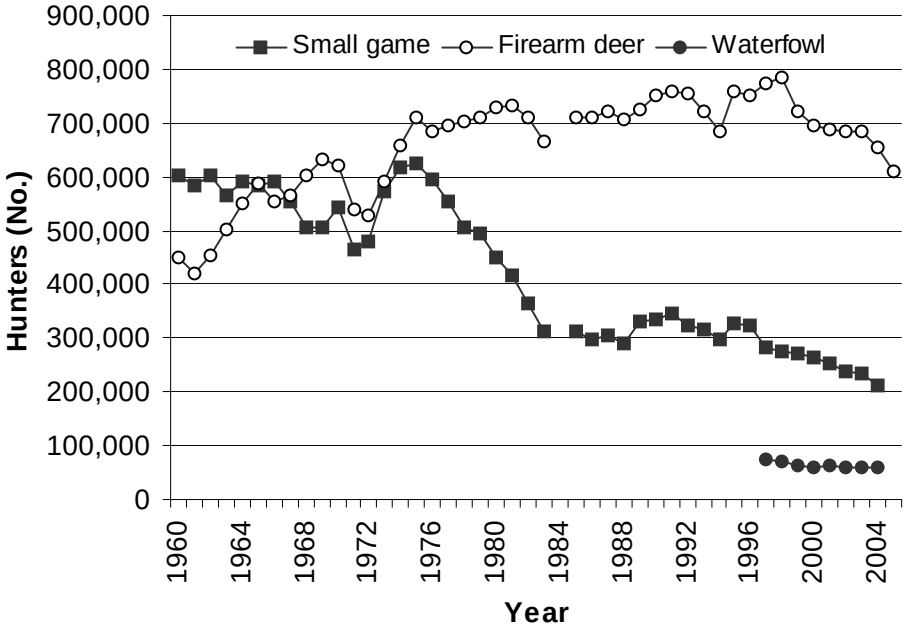

Figure 12. Number of active hunters (i.e., people that went afield) that hunted deer during the regular firearm season (November 15-31), small game, and waterfowl, 1960-2005. Estimates were not available for years when values were not plotted.

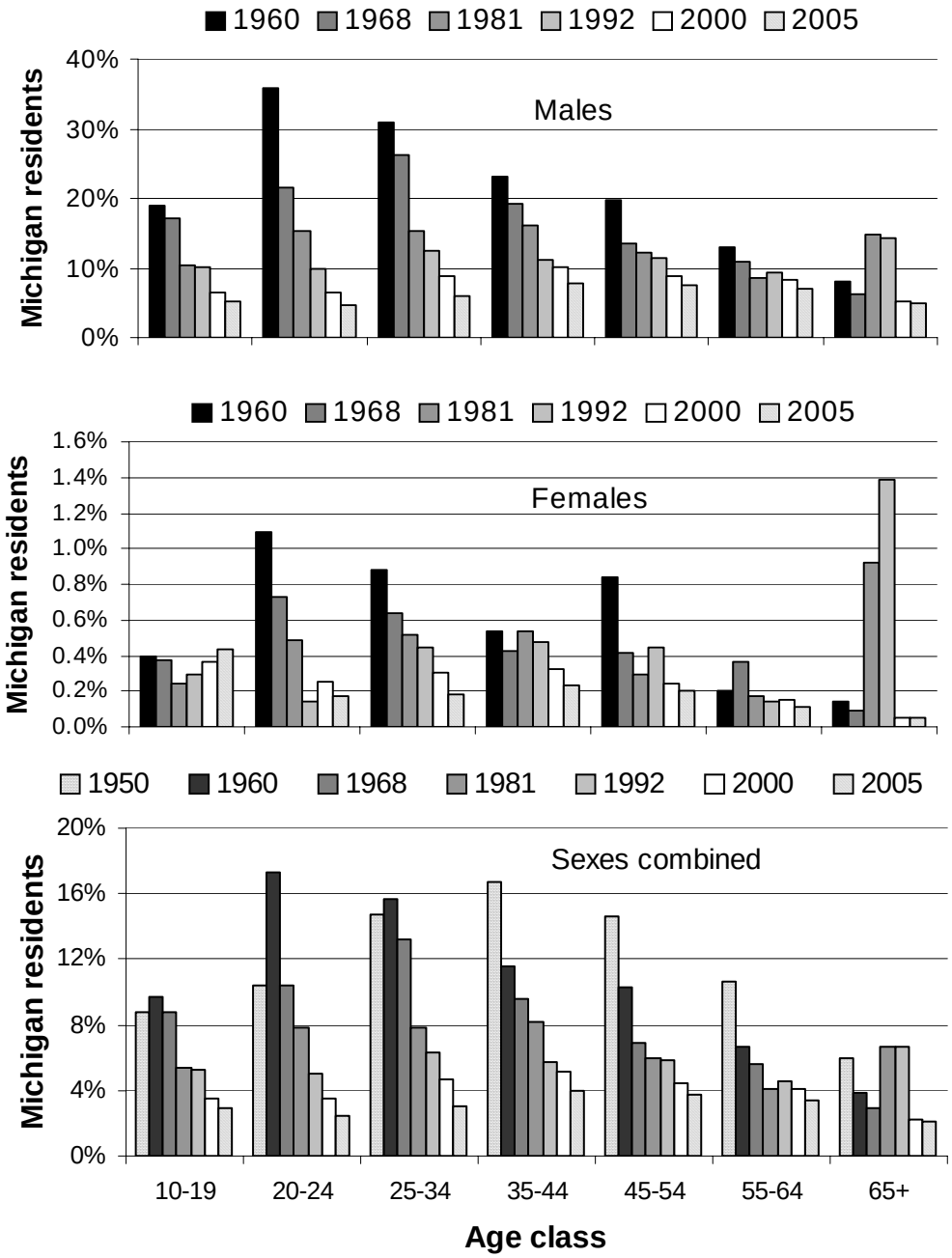

Figure 13. Proportion of Michigan residents that hunted small game by sexes and age, 1950-2005 (Ryel et al. 1970, unpubl. data). Data were available in 1950 for the sexes combined but not for the sexes separately.

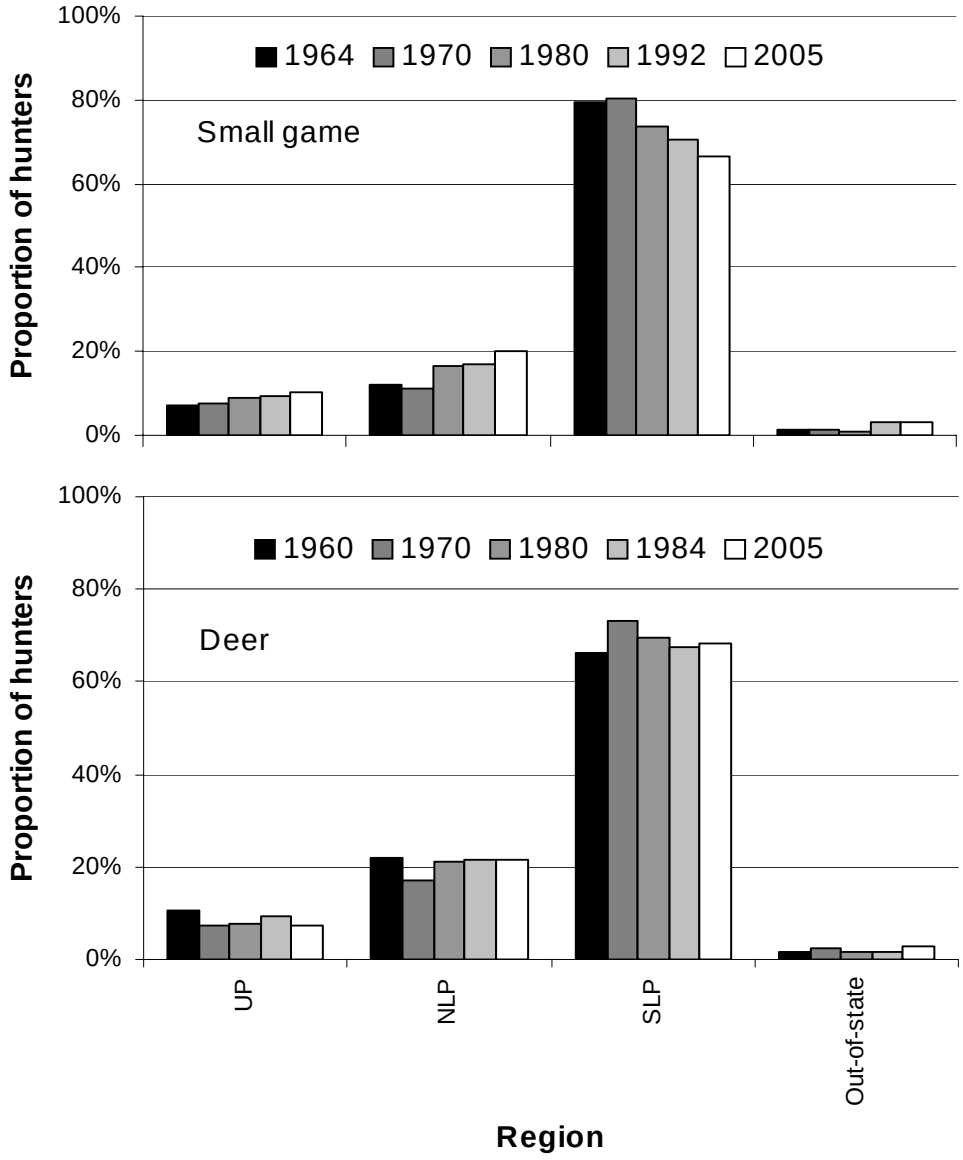

Figure 14. The residency of people that purchased small game and deer hunting licenses in Michigan, 1960-2005 (Ryel 1965b, Langenau et al. 1985, unpubl. data). Data were not available for the same years for small game and deer hunters.

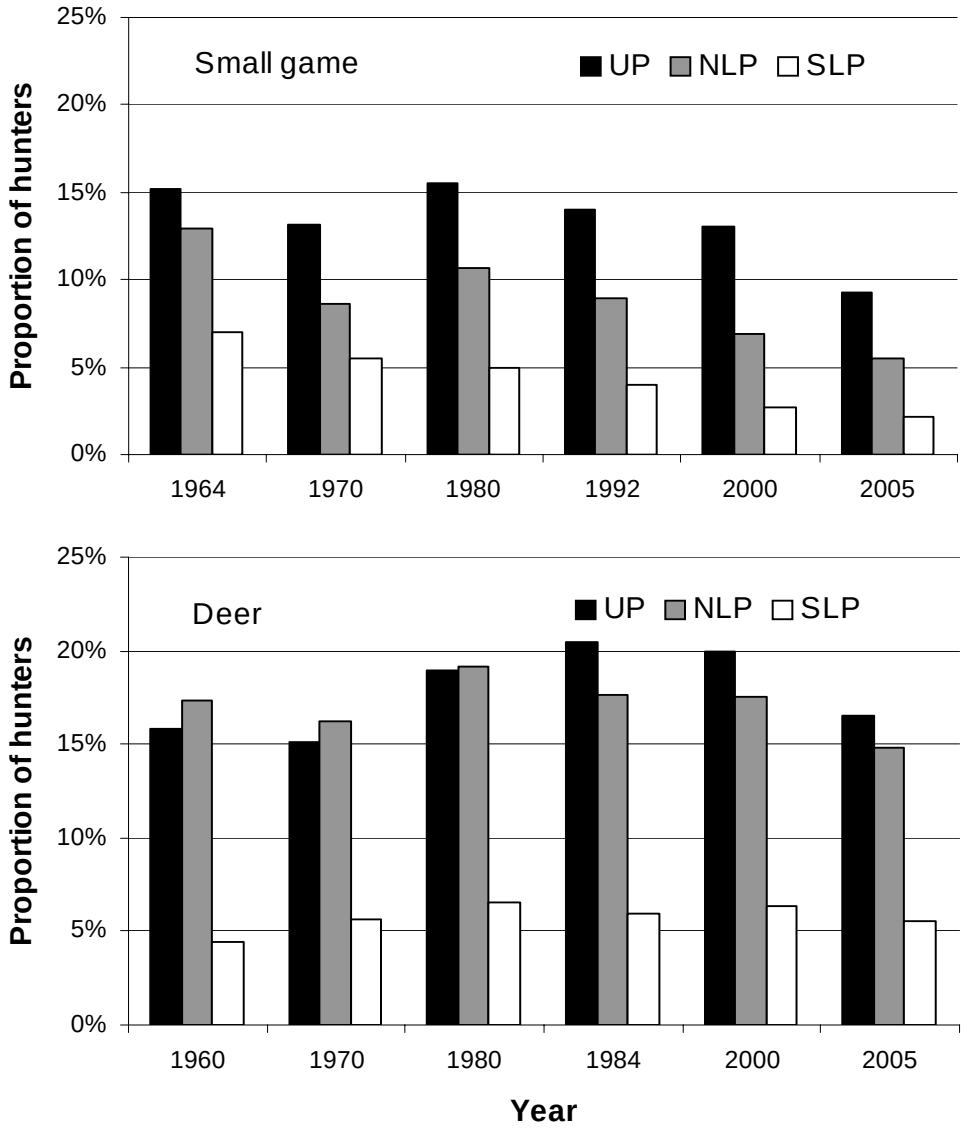

Figure 15. Proportion of Michigan residents that purchased a small game and deer hunting license in Michigan by area of residence, 1960-2005 (Ryel 1965, Langenau et al. 1985, unpubl. data). Data were not available for the same years for small game and deer hunters.

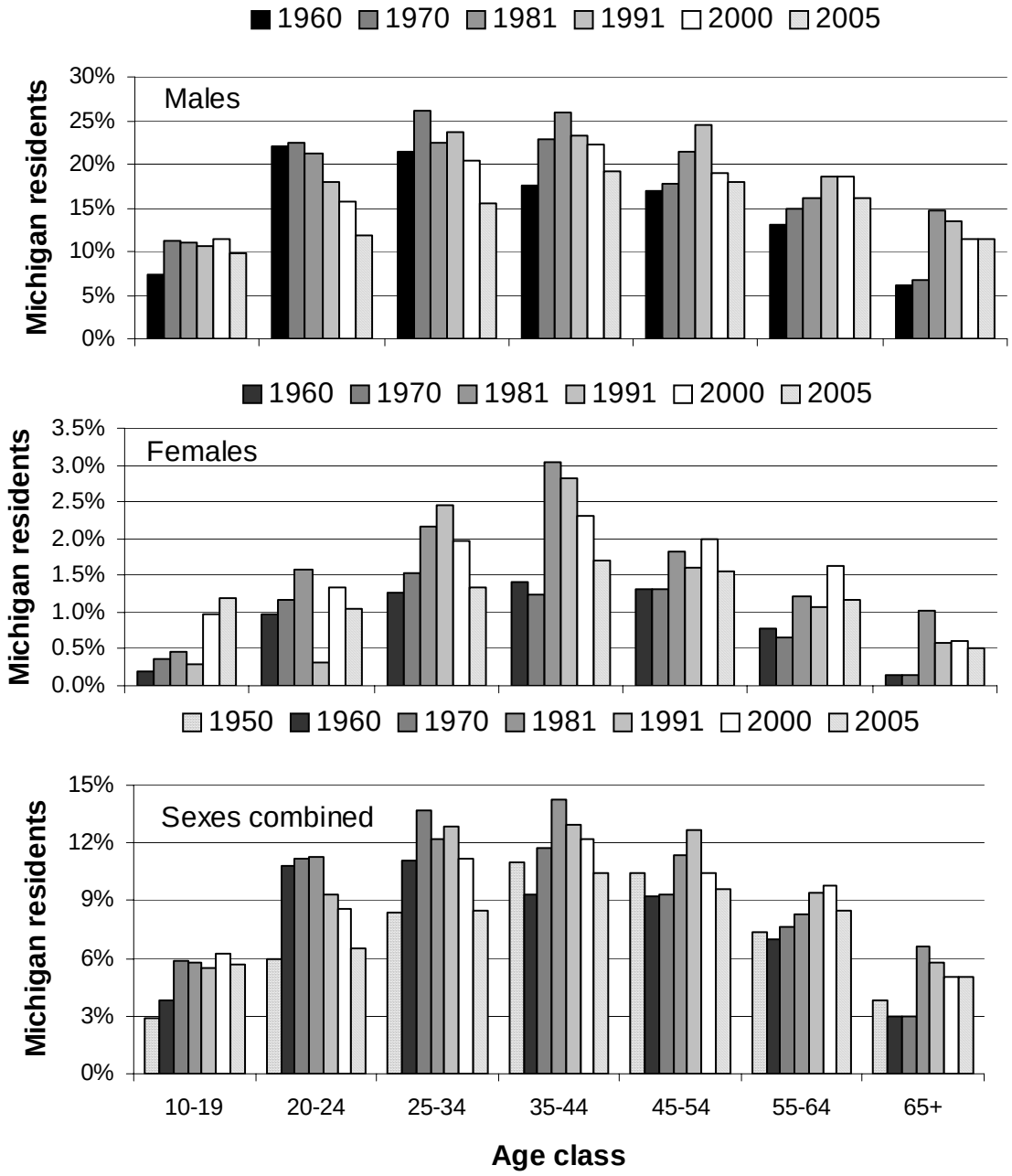

Figure 16. Proportion of Michigan residents that hunted deer by sexes and age, 1950-2005 (Ryel et al. 1970, Winterstein 1992, unpubl. data). Data were available in 1950 for the sexes combined but not for the sexes separately.

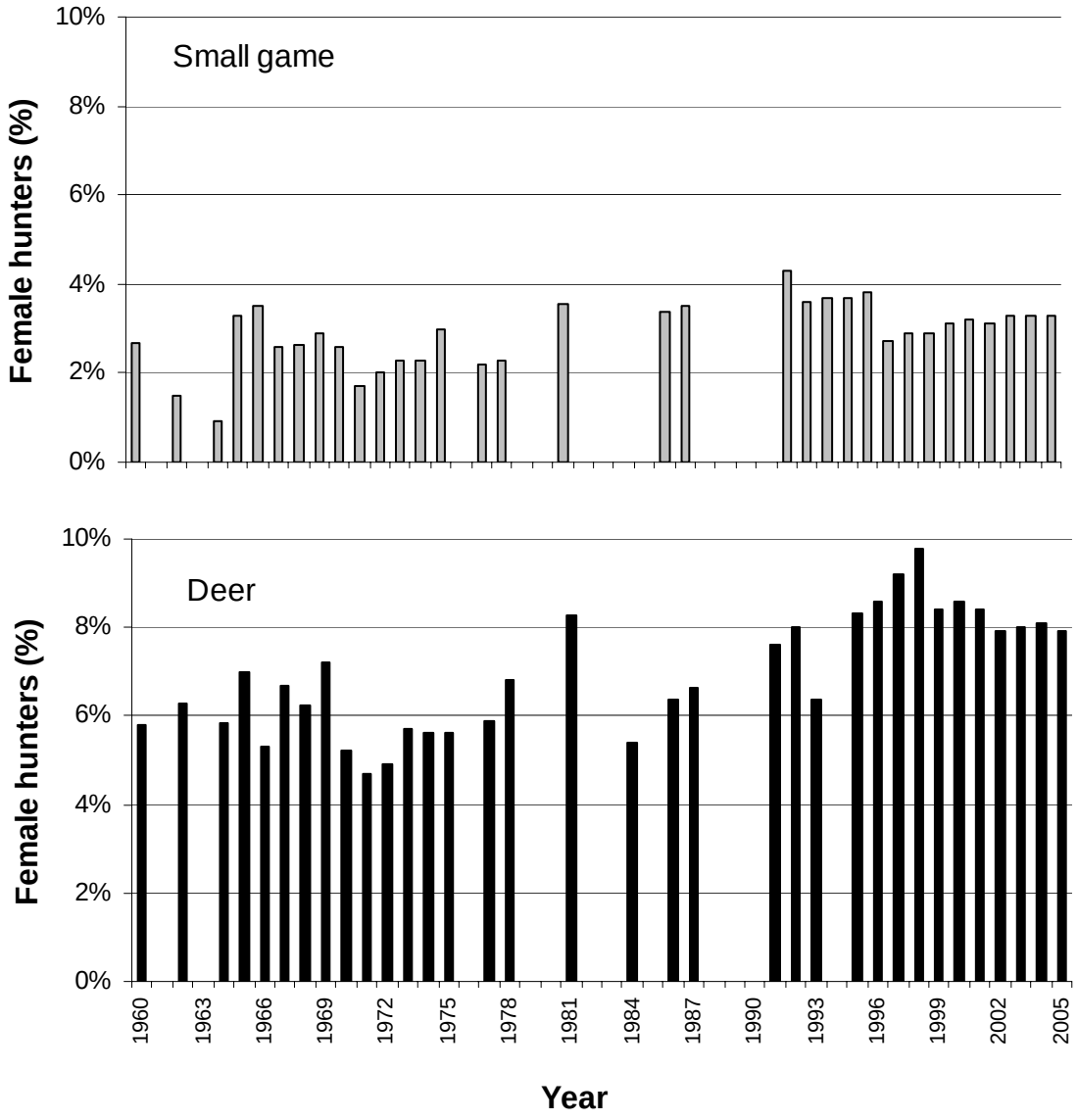

Figure 17. Proportion of females in Michigan that purchased small game and deer licenses, 1960-2005 (Jamsen 1967, Ryel et al. 1970, Langenau et al. 1985, Winterstein 1992, Minnis and Peyton 1994, unpubl. data).

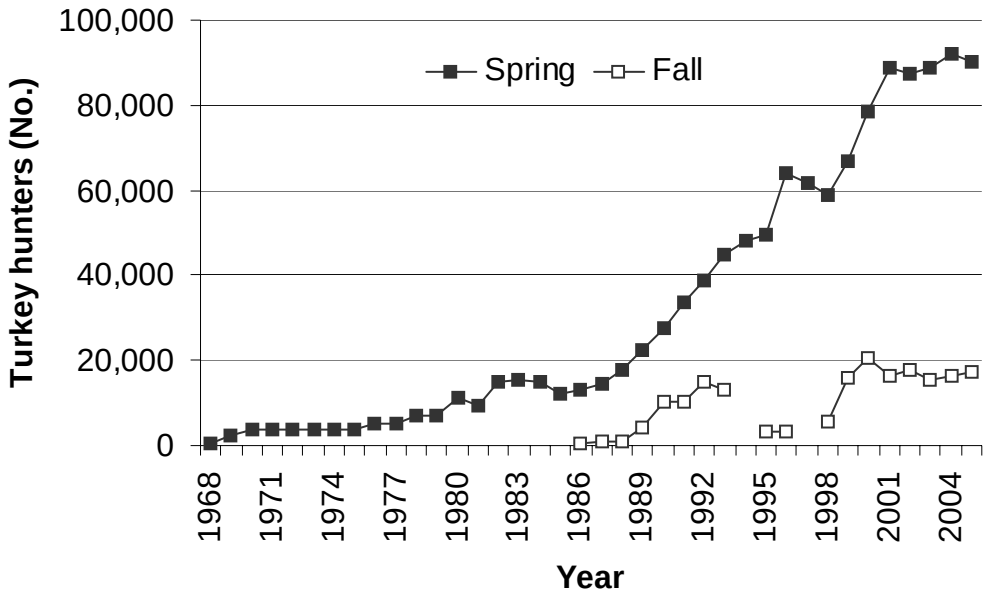

Figure 18. Number of active turkey hunters (i.e., people that went afield) participating in the spring and fall seasons, 1968-2005. No hunting occurred in years when values were not plotted.

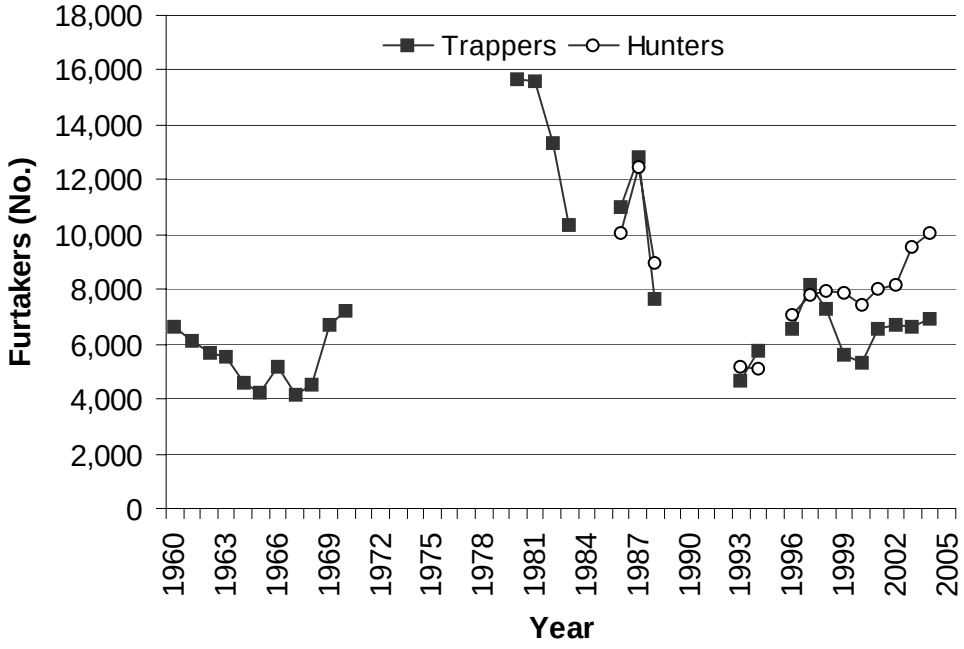

Figure 19. Number of active furtakers (i.e., people that went afield) that trapped or hunted furbearers during 1960-2005. Estimates were not available for years when values were not plotted.

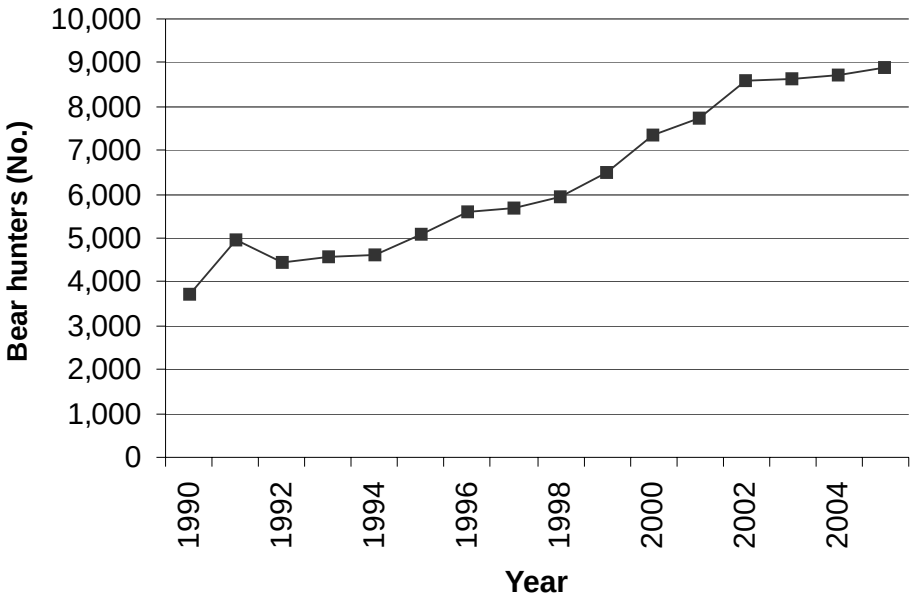

Figure 20. Number of active bear hunters (i.e., people that went afield) during 1990-2005.

Table 1. Licenses that were available to hunt or trap game animals in Michigan, 2003-2005.

Species	Hunting license types	Species that can be taken
Bear	Resident, Senior, and Nonresident, and Lifetime bear hunting licenses	Black bear
Deer	Resident, Senior, Junior, and Nonresident Combination; Resident, Senior, and Nonresident Firearm; Resident, Senior, Junior, and Nonresident Archery; Harsens, Shiawassee, Resident, Junior, and Nonresident Antlerless; and Military hunting licenses	White-tailed deer
Elk	Elk Hunting License	Elk
Furbearers[a]	Resident, Senior, Junior, and Nonresident fur harvester licenses; Resident, Junior, and Nonresident trapping only; and Military Fur Harvester licenses	Badger, beaver, bobcat, coyote, fisher, fox, mink, muskrat, opossum, otter, raccoon, skunk, or weasels
Small game[a,b,c]	Resident, Senior, Junior, Nonresident, 3-day Nonresident, and Military small game hunting licenses	Coyote, American crow, snowshoe hare, ring-necked pheasant, cottontail rabbit, ruffed grouse, squirrels, skunk, waterfowl, or American woodcock
Turkey	Resident, Senior, and Nonresident spring turkey hunting licenses; and Resident, Senior, and Nonresident fall turkey hunting licenses	Wild turkey
Waterfowl[d]	Waterfowl Hunting and Military Waterfowl licenses	Ducks or geese

[a]Landowners (or their designee) could take raccoons and coyotes throughout the year on their property without a license if these animals were causing damage.

[b]Landowners and their families that hunted on property where they live could hunt small game without a hunting license.

[c]Only residents could hunt coyotes with a small game license. Nonresidents were required to purchase a Fur Harvester License to hunt coyotes.

[d]Waterfowl hunters were normally required to purchase both a small game license and a waterfowl hunting license. Hunters 12-15 years of age could legally hunt waterfowl without a waterfowl hunting license; however, they were required to purchase a small game license.

Table 2. Number of people that purchased a Michigan hunting license during 2003-2005.[a]

	Year		
Hunting license type	2003	2004	2005
Bear[b]	9,216	9,297	9,464
Deer	787,729	755,968	712,422
Elk[b]	97	123	147
Fur harvester	20,411	21,452	21,585
Small game	327,039	306,677	287,569
Turkey[b]	115,471	118,302	116,777
Spring turkey	107,868	110,617	108,633
Fall turkey	19,025	20,139	21,343
Waterfowl	65,024	62,740	59,658
All types[c]	869,288	835,816	789,978

[a]Within each license type, a person is counted only once regardless of the number of licenses purchased.
[b]A restricted number of licenses were available, and these licenses were distributed using a random drawing.
[c]Total for all types does not equal sum of all license types because people can purchase multiple license types.

Table 3. Residency of people (%) that purchased Michigan hunting licenses in 2003.

	License type									
Area[a]	Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl	All types
DNR Administrative Units										
West Upper Peninsula	22.6	5.7	1.0	10.0	8.2	3.8	3.2	9.1	4.6	5.8
East Upper Peninsula	4.7	1.7	2.1	4.3	2.4	0.8	0.7	1.2	2.1	1.7
NE Lower Peninsula	12.6	6.7	11.3	10.3	6.8	5.9	6.3	0.8	5.7	6.6
NW Lower Peninsula	7.5	8.6	10.3	9.5	7.4	7.5	7.9	1.4	5.6	8.3
Saginaw Bay	12.3	12.0	17.5	14.1	11.3	13.0	13.1	12.1	11.3	11.6
SW Lower Peninsula	10.5	19.0	11.3	16.2	17.7	24.7	23.9	38.4	20.7	18.8
SC Lower Peninsula	10.8	17.0	12.4	15.9	15.2	20.0	20.1	21.8	15.0	16.6
SE Lower Peninsula	17.7	26.2	33.0	19.3	27.4	23.1	23.6	14.6	30.2	26.6
Ecoregions										
Upper Peninsula	27.2	7.3	3.1	14.1	10.5	4.5	3.8	9.9	6.6	7.4
Northern Lower Peninsula	22.1	17.1	25.8	22.1	15.7	14.5	15.3	3.6	12.4	16.6
Southern Lower Peninsula	49.3	72.6	70.1	63.4	70.4	79.9	79.8	86.0	76.3	72.1
Out of state	1.4	3.1	0.0	0.4	3.4	1.1	1.2	0.5	4.7	3.9

[a]See Figure 1 for area boundaries.

Table 4. Residency of people (%) that purchased Michigan hunting licenses in 2004.

	License type									
Area[a]	Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl	All types
DNR Administrative Units										
West Upper Peninsula	21.4	5.7	0.8	10.6	7.7	3.4	3.2	5.6	4.6	5.7
East Upper Peninsula	4.5	1.7	1.6	4.4	2.3	0.8	0.7	0.8	2.1	1.7
NE Lower Peninsula	11.8	6.8	16.4	10.8	6.7	6.2	6.3	5.4	5.9	6.7
NW Lower Peninsula	7.9	8.6	7.4	10.1	7.4	7.6	8.0	1.2	5.8	8.3
Saginaw Bay	11.6	12.1	16.4	13.8	11.3	12.8	12.9	10.8	11.5	11.8
SW Lower Peninsula	10.2	19.0	11.5	16.0	18.3	24.4	23.8	34.6	20.6	18.8
SC Lower Peninsula	11.3	17.2	14.8	15.6	15.4	19.9	20.0	21.3	14.7	16.8
SE Lower Peninsula	20.1	25.9	31.1	18.3	27.4	23.6	23.8	19.8	30.0	26.3
Ecoregions										
Upper Peninsula	25.8	7.2	2.4	14.8	10.0	4.1	3.8	6.2	6.6	7.3
Northern Lower Peninsula	21.8	17.2	26.0	23.2	15.6	14.9	15.3	7.6	12.9	16.7
Southern Lower Peninsula	51.1	72.6	71.5	61.6	71.0	79.8	79.5	85.6	75.8	72.2
Out of state	1.3	3.0	0.0	0.4	3.4	1.3	1.3	0.5	4.6	3.9

[a]See Figure 1 for area boundaries.

Table 5. Residency of people (%) that purchased Michigan hunting licenses in 2005.

	License type									
Area[a]	Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl	All types
DNR Administrative Units										
West Upper Peninsula	22.8	5.7	2.1	11.0	7.9	3.0	2.8	4.9	4.7	5.8
East Upper Peninsula	4.7	1.7	1.4	4.4	2.3	0.7	0.7	0.7	2.1	1.7
NE Lower Peninsula	11.6	6.9	13.0	11.3	7.0	6.0	6.2	2.7	6.0	6.8
NW Lower Peninsula	7.1	8.5	13.0	9.9	7.5	7.9	8.3	3.3	6.0	8.2
Saginaw Bay	11.9	12.3	13.7	13.7	11.4	12.3	12.6	9.2	11.9	11.9
SW Lower Peninsula	10.5	19.0	13.0	15.5	18.1	24.6	23.9	34.1	20.3	18.8
SC Lower Peninsula	10.7	17.4	17.8	15.5	15.4	20.4	20.2	24.4	14.5	17.0
SE Lower Peninsula	19.3	25.7	26.0	18.3	27.0	23.6	23.9	20.1	30.1	26.1
Ecoregions										
Upper Peninsula	27.4	7.3	3.4	15.2	10.1	3.7	3.4	5.4	6.8	7.4
Northern Lower Peninsula	21.0	17.2	28.6	23.4	16.0	14.9	15.5	6.1	13.2	16.7
Southern Lower Peninsula	50.2	72.7	68.0	61.0	70.7	80.0	79.6	88.0	75.7	72.3
Out of state	1.4	2.9	0.0	0.4	3.3	1.4	1.4	0.5	4.3	3.7

[a]See Figure 1 for area boundaries.

Table 6. Sex of people (%) that purchased Michigan hunting licenses, 2003-2005.

	2003		2004		2005	
Hunting license	Male	Female	Male	Female	Male	Female
Bear	91.6	8.4	91.9	8.1	91.5	8.5
Deer	92.0	8.0	91.9	8.1	92.1	7.9
Elk	95.9	4.1	87.7	12.3	89.8	10.2
Fur harvester	97.8	2.2	97.6	2.4	97.6	2.4
Small game	96.7	3.3	96.7	3.3	96.7	3.3
Turkey	93.6	6.4	93.3	6.7	93.2	6.8
Spring turkey	93.6	6.4	93.3	6.7	93.1	6.9
Fall turkey	94.8	5.2	94.7	5.3	94.6	5.4
Waterfowl	97.9	2.1	98.0	2.0	98.0	2.0
All types	91.9	8.1	91.8	8.2	92.0	8.0

Table 7. Mean age of people buying a Michigan hunting license during 2003-2005.[a]

	Year								
	2003			2004			2005		
License type	Males	Females	Combined	Males	Females	Combined	Males	Females	Combined
Bear[b]	45	45	45	45	44	45	46	43	45
Deer	41	40	41	41	40	41	42	40	42
Elk[b]	46	50	46	47	41	46	47	45	47
Fur harvester	43	40	43	44	40	43	44	40	44
Small game	40	33	40	41	33	41	41	33	41
Turkey[b]	44	40	44	44	40	44	44	39	44
Spring turkey[b]	44	40	44	44	40	44	44	39	44
Fall turkey[b]	46	42	46	47	43	47	47	43	46
Waterfowl[c]	41	37	41	41	37	41	42	37	42
Any species	41	39	41	41	39	41	42	39	42

[a]Age on October 1.
[b]A restricted number of licenses were available and were distributed using a random drawing.
[c]Hunters 12-15 years of age could legally hunt waterfowl without a waterfowl hunting license; however, they were required to purchase a small game license.

Table 8. Percentage of Michigan residents purchasing a Michigan hunting license, by age and sex, during 2003-2005.

	Year								
	2003			2004			2005		
Age[a]	Males	Females	Combined	Males	Females	Combined	Males	Females	Combined
≥12	18.6	1.6	9.9	17.7	1.5	9.4	16.8	1.4	8.9
≥16	18.8	1.6	9.9	17.9	1.5	9.5	17.0	1.4	9.0
12-17	16.4	1.9	9.3	15.9	2.0	9.1	14.5	1.9	8.4
12-18	16.1	1.8	9.2	15.6	1.9	8.9	14.3	1.8	8.2
12-19	15.9	1.7	9.0	15.4	1.8	8.8	14.1	1.8	8.1
18-24	14.9	1.3	8.2	13.9	1.2	7.7	12.9	1.2	7.2
25-34	19.8	1.8	10.9	18.2	1.7	10.0	16.7	1.5	9.2
35-44	23.1	2.2	12.6	21.9	2.0	11.9	20.6	1.9	11.2
45-54	20.5	1.9	11.1	20.1	1.9	10.8	19.4	1.7	10.5
55-64	19.0	1.4	10.0	18.5	1.4	9.7	17.6	1.3	9.2
65-74	17.1	1.0	8.2	17.3	1.0	8.3	17.3	0.9	8.3
75-84	8.4	0.3	3.6	8.6	0.3	3.7	8.4	0.3	3.6
≥85	2.8	0.1	0.9	2.8	0.1	0.9	2.6	0.1	0.8

[a]Age on July 1. July 1 was used because the U.S. Census Bureau reports Michigan demographic estimates as of July 1.

Table 9. Number of people that purchased a single type of hunting license in Michigan, 2003-2005.[a]

Species group	Year 2003	2004	2005
Bear[b]	641	670	801
Number (N)[c]	7.0	7.2	8.5
Deer	487,651	470,655	442,251
N	61.9	62.3	62.1
Elk[b]	2	5	9
N	2.1	4.1	6.1
Fur harvester	827	958	921
N	4.1	4.5	4.3
Small game	52,761	49,426	47,272
N	16.1	16.1	16.4
Turkey[b]	10,522	12,203	12,211
N	9.1	10.3	10.5
Spring turkey	10,119	11,772	11,817
N	9.4	10.6	10.9
Fall turkey	638	727	719
N	3.4	3.6	3.4
Waterfowl[d]	219	296	277
N	0.3	0.5	0.5
Any single type[e]	552,388	533,917	503,417
N	63.5	63.9	63.7

[a]Within each species group, a person is counted only once regardless of the number of licenses purchased.
[b]A restricted number of licenses were available, and these licenses were distributed using a random drawing.
[c]Within each species group, the percentage of license buyers that only purchased a license to hunt this species.
[d]Waterfowl hunters normally were required to purchase both small game and waterfowl hunting licenses.
[e]Fall and spring turkey licensees treated as hunters pursuing separate species.

Table 10. Number of people buying licenses to hunt multiple species in Michigan during 2003.

Primary species	People buying license to hunt primary species	People that also purchased a license to hunt a secondary species								
		Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl
Bear[a]	9,216		8,375	7	1,425	5,987	3,229	3,062	5,68	1,521
Number (N)	100		90.9	0.1	15.5	65.0	35.0	33.2	6.2	16.5
Deer	787,729	8,375		93	18,411	257,784	101,576	94,625	179,35	51,454
N	100	1.1		<0.1	2.3	32.7	12.9	12.0	2.3	6.5
Elk[a]	97	7	93		7	64	45	43	8	18
N	100	7.2	95.9		7.2	66.0	46.4	44.3	8.2	18.6
Fur harvester	20,411	1,425	18,411	7		17,224	7,188	6,758	15,97	5,646
N	100	7.0	90.2	<0.1		84.4	35.2	33.1	7.8	27.7
Small game	327,039	5,987	257,784	64	17,224		66,552	61,860	128,73	64,334
N	100	1.8	78.8	<0.1	5.3		20.3	18.9	3.9	19.7
Turkey[a]	115,471	3,229	101,576	45	7,188	66,552		107,868	190,25	19,902
N	100	2.8	88.0	<0.1	6.2	57.6		93.4	16.5	17.2
Spring turkey[a]	107,868	3,062	94,625	43	6,758	61,860	107,868		114,22	18,677
N	100	2.8	87.7	<0.1	6.3	57.3	100		10.6	17.3
Fall turkey[a]	19,025	568	17,935	8	1,597	12,873	19,025	11,422		4,060
N	100	3.0	94.3	<0.1	8.4	67.7	100	60.0		21.3
Waterfowl[b]	65,024	1,521	51,454	18	5,646	64,334	19,902	18,677	40,60	
N	100	2.3	79.1	<0.1	8.7	98.9	30.6	28.7	6.2	

[a]A restricted number of licenses were available and were distributed using a random drawing.
[b]Waterfowl hunters normally are required to purchase both small game and waterfowl hunting licenses.

Table 11. Number of people buying licenses to hunt multiple species in Michigan during 2004.

Primary species	People buying license to hunt primary species	People that also purchased a license to hunt a secondary species								
		Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl
Bear[a]	9,297		8,366	2	1,505	5,812	3,280	3,155	573	1,446
Number (N)	100		90.0	<0.1	16.2	62.5	35.3	33.9	6.2	15.6
Deer	755,968	8,366		115	19,313	241,094	102,630	95,657	18,905	49,483
N	100	1.1		<0.1	2.6	31.9	13.6	12.7	2.5	6.5
Elk[a]	123	2	115		10	68	46	43	10	16
N	100	1.6	93.5		8.1	55.3	37.4	35.0	8.1	13.0
Fur harvester	21,452	1,505	19,313	10		17,916	7,705	7,300	1,760	5,925
N	100	7.0	90.0	<0.1		83.5	35.9	34.0	8.2	27.6
Small game	306,677	5,812	241,094	68	17,916		66,059	61,454	13,548	61,854
N	100	1.9	78.6	<0.1	5.8		21.5	20.0	4.4	20.2
Turkey[a]	118,302	3,280	102,630	46	7,705	66,059		110,617	20,139	19,795
N	100	2.8	86.8	<0.1	6.5	55.8		93.5	17.0	16.7
Spring turkey[a]	110,617	3,155	95,657	43	7,300	61,454	110,617		12,454	18,640
N	100	2.9	86.5	<0.1	6.6	55.6	100		11.3	16.9
Fall turkey[a]	20,139	573	18,905	10	1,760	13,548	20,139	12,454		4,299
N	100	2.8	93.9	<0.1	8.7	67.3	100	61.8		21.3
Waterfowl[b]	62,740	1,446	49,483	16	5,925	61,854	19,795	18,640	4,299	
N	100	2.3	78.9	<0.1	9.4	98.6	31.6	29.7	6.9	

[a]A restricted number of licenses were available and were distributed using a random drawing.
[b]Waterfowl hunters normally are required to purchase both small game and waterfowl hunting licenses.

Table 12. Number of people buying licenses to hunt multiple species in Michigan during 2005.

Primary species	People buying license to hunt primary species	People that also purchased a license to hunt a secondary species								
		Bear	Deer	Elk	Fur harvester	Small game	Turkey	Spring turkey	Fall turkey	Waterfowl
Bear[a]	9,464		8,425	11	1,498	5,629	3,081	2,928	599	1,296
Number (N)	100		89.0	0.1	15.8	59.5	32.6	30.9	6.3	13.7
Deer	712,422	8,425		136	19,452	224,345	101,079	93,608	20,111	46,676
N	100	1.2		<0.1	2.7	31.5	14.2	13.1	2.8	6.6
Elk[a]	147	11	136		14	86	62	58	9	16
N	100	7.5	92.5		9.5	58.5	42.2	39.5	6.1	10.9
Fur harvester	21,585	1,498	19,452	14		18,049	7,792	7,304	1,956	5,959
N	100	6.9	90.1	0.1		83.6	36.1	33.8	9.1	27.6
Small game	287,569	5,629	224,345	86	18,049		63,182	58,380	14,064	58,743
N	100	2.0	78.0	<0.1	6.3		22.0	20.3	4.9	20.4
Turkey[a]	116,777	3,081	101,079	62	7,792	63,182		108,633	21,343	19,054
N	100	2.6	86.6	0.1	6.7	54.1		93.0	18.3	16.3
Spring turkey[a]	108,633	2,928	93,608	58	7,304	58,380	108,633		13,199	17,721
N	100	2.7	86.2	0.1	6.7	53.7	100		12.2	16.3
Fall turkey[a]	21,343	599	20,111	9	1,956	14,064	21,343	13,199		4,610
N	100	2.8	94.2	<0.1	9.2	65.9	100	61.8		21.6
Waterfowl[b]	59,658	1,296	46,676	16	5,959	58,743	19,054	17,721	4,610	
N	100	2.2	78.2	<0.1	10.0	98.5	31.9	29.7	7.7	

[a]A restricted number of licenses were available and were distributed using a random drawing.
[b]Waterfowl hunters normally are required to purchase both small game and waterfowl hunting licenses.

Table 13. Percentage of hunters purchasing a hunting license during two consecutive years.[a]

	Period					
	2003-2004			2004-2005		
License type	Male	Female	Combined	Male	Female	Combined
Bear[b]	7.7	5.8	7.6	10.1	7.6	9.9
Deer	79.9	59.0	78.3	78.9	57.4	77.2
Elk[b,c]	0.0	0.0	0.0	0.0	0.0	0.0
Fur harvester	67.5	55.1	67.3	66.2	52.4	65.9
Small game	67.6	48.9	67.1	66.9	48.4	66.4
Turkey[b]	65.3	55.5	64.7	64.4	54.7	63.8
Spring turkey	65.0	55.3	64.4	63.8	54.2	63.2
Fall turkey	42.5	37.1	42.2	42.0	35.2	41.7
Waterfowl	65.7	49.3	65.3	64.7	51.0	64.4
All types	79.6	59.4	78.0	78.7	58.0	77.1

[a]Includes only people that were at least 18 years old on October 1 of the first year of the interval.
[b]A restricted number of licenses were available and were distributed using a random drawing.
[c]Nobody purchased an elk license during consecutive years because elk hunters were ineligible to obtain licenses in consecutive years.

Table 14. Proportion of people that purchased a hunting license in 2000 that also purchased licenses during 2003-2005.

	Period								
	One year (2003 only)			Two years (2003 and either 2004 or 2005)			Three Years (2003-2005)		
License type	Males	Females	Combined	Males	Females	Combined	Males	Females	Combined
Bear[a]	79.9	81.4	80.0	17.1	16.2	17.0	3.0	2.4	3.0
Deer	15.4	34.3	16.8	16.3	23.4	16.8	68.4	42.4	66.3
Elk[a]	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Fur harvester	26.0	40.4	26.3	20.2	18.2	20.2	53.8	41.4	53.5
Small game	24.9	44.8	25.4	22.4	22.8	22.5	52.7	32.4	52.1
Turkey[a]	25.7	36.6	26.4	24.4	25.1	24.4	49.9	38.3	49.2
Spring turkey[a]	25.8	36.6	26.4	25.0	25.5	25.0	49.3	37.9	48.6
Fall turkey[a]	47.4	54.6	47.8	26.5	25.6	26.5	26.1	19.7	25.8
Waterfowl	27.3	46.4	27.7	22.7	20.6	22.7	50.0	33.0	49.7
Any species	15.8	33.9	17.2	15.9	23.2	16.5	68.4	43.0	66.4

[a]A restricted number of licenses were available and were distributed using a random drawing.